



Service Manual



TDI / XXTREME / S-TDI

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General notes

Copyright

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Note: Please follow the notes shown in this text - it will help to cover all situations and keep your engine working. .

Error handling and search

To verify functionality of mechanical and electronically functions - if there is not an evidently defect - use status report ' STA0 to STA3 ' (see User Manual) - printout to check the unit.

Data transmission

characteristic	possible reason	solution
missing or defective data	wrong connection	check interfaceconnection
	wrong interface	check parameter IFAC
	parameter wrong	check parameter BAUD, PARI, SBIT,DBIT, HAND (only with serial interface)
	connector pin assignment wrong	change wire or pin assignment (assignment see Easy Plug Manual)
	wrong handshake	check parameter (only with serial interface)
	emulation	use standard font set
	loosen board connector	check and perhaps plug in
	defective board	check and perhaps change
	distance to wide	reduce length of wire

Display

characteristic	possible reason	solution
dark display	no power	check (perhaps change fuse) see fuse)
	loosen connector	check and perhaps plug in
	defect display	check and perhaps change
	main board defect	check and perhaps change
key function faulty	loosen connector	check and perhaps plug in
	key defect	check and perhaps change display board
	main board defect	check and perhaps change

Punch recognition

characteristic	possible reason	solution
status ST05 with material in the sensor	mechanical sensor position not adjusted correctly	adjust mechanical sensor position
gap not found	sensor defect	check with „SCHK“ and perhaps change (see user manual)
	sensor adjustment wrong	change sensor sensibility with parameter 'PUNS'
	wrong sensor selected	check Sensor REFL or NORM
print positionnot in the prog. position	recognised gap position is changing - reasoned by gap contour	adjust zero position with parameter 'PUNO'

Material transport

characteristic	possible reason	solution
sloping material (infeed)	unfavourable position of pressure roller	check and if necessary adjust
no material transport	unfavourable position of pressure roller	check and if necessary adjust
	adjustment of pressure spring	check pressure and perhaps adjust
no material feed	connector of stepper loosen	check and perhaps plug in
	stepper motor defect	check and perhaps change
	main board defect	check and perhaps change
	feed key defect	check and perhaps change display board
media is moving	media guiding wrong adjusted	check and perhaps adjust
no media transport	empty magazine	fill magazine
	magazine not in upper position	check and adjust position
	feed roller dirty	check and clean
	separate crevasse too small	check and adjust
more label then one is moved wide	separate crevasse is too wide	check and adjust
synchronisation of media movement is wrong	sensor defect	check with 'SCHK' - see user manual and change
	sliding feed roller	check and clean
label platform is not moving	stepper motor defective	check and change

	wire not connected	check and plug in
	optional board defect	check and change
	loosen spindle	check and fix
	reflective eye in the magazine is dirty or defective	check sensor with 'SCHK' see user manual and change or clean
label platform is running to upper position	sensor defect	check with 'SCHK' and change
label platform is moving against lower stop position	stop switch defect	check with 'SCHK' - see User Manual - and change if necessary

Ribbon - Ribbon guiding

characteristic	possible reason	solution
ribbon end message without reason	ribbon unwind pin is not rotating	fix ribbon core on pin (using spring leaf) - if the thread is stripped move the spring leaf to an other pos.
	wrong parameter	check parameter FOIL and perhaps change
	sensor defect	check and perhaps change (see SCHK - user manual)
	ribbon unwind pin blocked	check and perhaps loose
	ribbon rewind defect	check and perhaps repair
ribbon wrinkle	wrong adjustment of ribbon rewind friction	check and adjust friction
ribbon is not re-winded correctly	wrong adjustment of ribbon rewind friction	check and adjust friction
	round belt defect	check and perhaps replace
ribbon is rewound	wrong adjustment of	check and perhaps adjust

around ribbon transport axle	ribbon rewind friction	
	round belt defect	check and perhaps replace
ribbon breaks during printing process	high print temperature	check adjustment with parameter HVxx and reduce if possible
	HRES wrong adjusted	check resistor of thermal head and change if necessary

Feed Roller

characteristic	possible reason	solution
abrasion	high print speed	replace roller
	pressure of thermal head to high	check and perhaps adjust
	pressure roller not on material	check and adjust
	material deposit	cleaning (detergent 98925-00)
color deposit	ribbon print directly to feed roller	cleaning and avoid printing direct to feed roller (detergent 98926-00)
deformation	direct pressure to feed roller	avoid direct pressure
	long distance printing	replace roller
	high temperature of thermal head	check adjustment (HVxx) and perhaps change
	damaging by user	change feed roller and train user

Position of Print Format

characteristic	possible reason	solution
print position not in prog. position	wrong parameter	YPOS parameter or #J - Easy Plug . command - check and perhaps change

	gap position is recognised wrong - reasoned by gap contour	adjust with parameterPUNO
	material guiding to strong	check and perhaps adjust
	pressure roller adjustment wrong or not positioned	check and adjust
print transversally to document	material guiding not adjusted well	check and perhaps adjust
	thermal head not in zero position	check and adjust

Print Quality

characteristic	possible reason	solution
faint print	contaminated or damaged thermal head	clean or replace thermal head
	wrong electrical adjustment of thermal head	check parameter HVxx
	position of thermal head to feed roller	check mechanical adjustment
	wrong pressure of thermal head	check and perhaps adjust
	ribbon and media do not match	check media and ribbon type
	aged ribbon	new ribbon
bad or changing imprint	damaged or contaminated feed roller	check and perhaps clean or replace
feed OK - but no imprint	temperature of thermal head (less)	check adjustment (HVxx)
	wrong side of ribbon	check and perhaps change

thermal head not in print position	check and perhaps adjust
thermal head not fixed on axle	fix screw
thermal head defect	check thermal head and perhaps change
thermal head wire not connected	check and perhaps plug in
main board defect	check and perhaps change

Feed Unit

characteristic	possible reason	solution
no material transport	wrong adjustment of pressure roller	check and adjust
	belt defect	check and perhaps replace
	stepper motor defect	check and replace if necessary
	board defect	check and replace

Memory Card

characteristic	possible reason	solution
memory card is not recognised	contaminated contact	check and if necessary clean
	card not initialised	check and initialise
	card defect	check and perhaps replace
	type of card is not released	check and change

Service

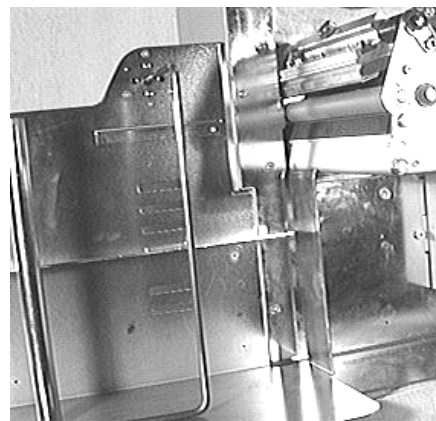
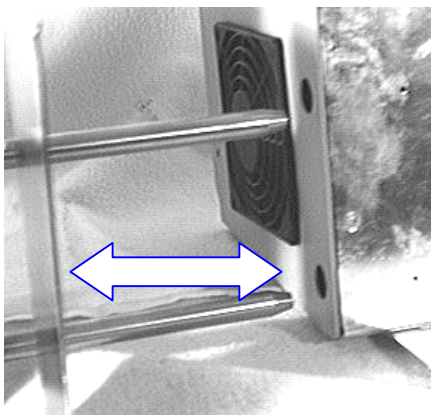
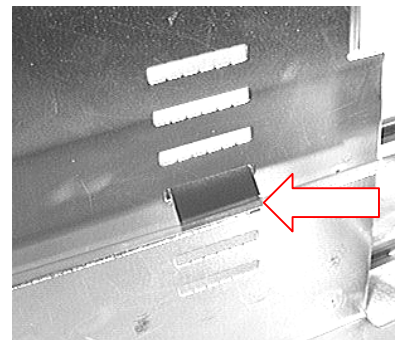
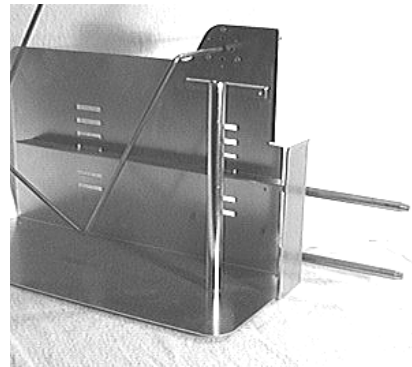
Mechanic

Stock magazine

The stock magazine is used to store the printed label / strip - it is not a stacker - so be aware that the function is limited.

Disassembly - Assembly

- to assemble slide the two guiding axle into the printer
- the magazine should touch the printer cover
- to guide the label / strip on the outer side adjust the guide stick
- adjust the end position with the magnetic round stick
- not all label sizes can be stored in the same height - use the platform to find the correct height for your label

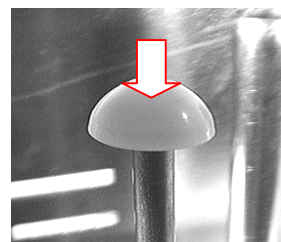
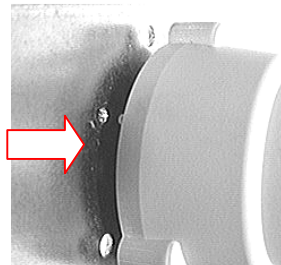
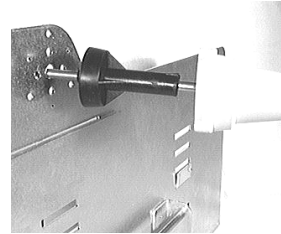
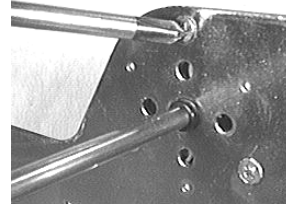


Guide stick

The guide stick is used to fix the label / strip on the outer side of the printed label / strip - with this unit the labels are stored in a functional way. To remove the label it is necessary to move the guide stick into the upper position - it will be fixed there.

Disassembly - assembly

- loosen the hexagonal screws and the rear cover can be removed
- the fixation part can be removed from the axle - and if necessary be changed
- the spring loaded pressure pieces catch to the holes and give a fixed position
- be aware of the cover fixation points during assembly
- to cover the guiding stick in a save way please attach the plastic cape to the stick

**Tooling**

cross recessed head size 1

Cover

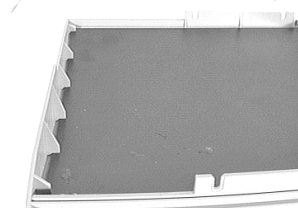
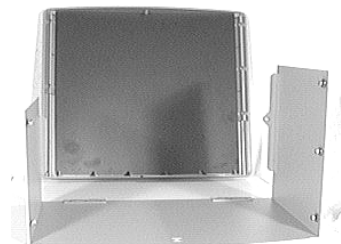
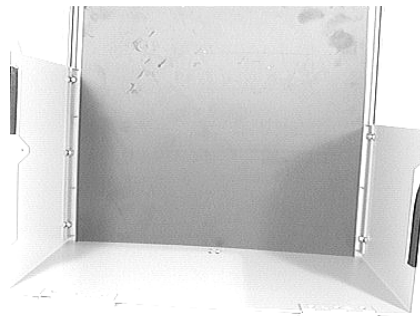
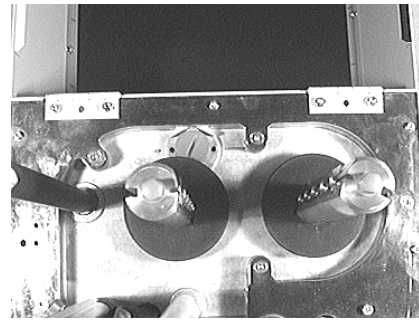
Remove the unit from power before opening the cover ! Only authorised personal is allowed to open the cover.

Attention : Opening the cover - unplugged - is dangerous to your life !

Front cover

Disassembly - assembly

- loosen the cover screws
(2 x 2 cross recessed screws)
the front cover can be removed completely
- the front cover consists out of a metal part around - and a front part out of two plastic parts
- metal - and plastic front are mounted together with 5 hexagonal head screw
- an additional snap in piece in the upper part of the metal cover gives more stability to the front cover
- open the hexagonal head screws slightly and pressing down the snap in piece - the front part can easily be removed
- if necessary the front plate can now be removed



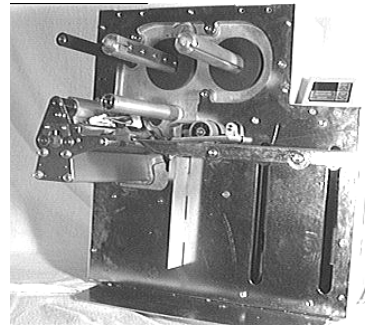
Tooling

cross recessed head size 1
hex socket wrench size 6

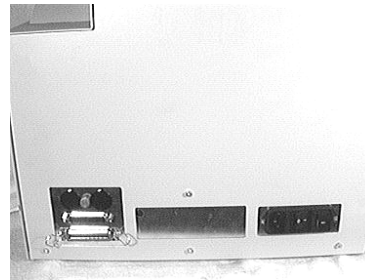
Rear cover

Disassembly - assembly

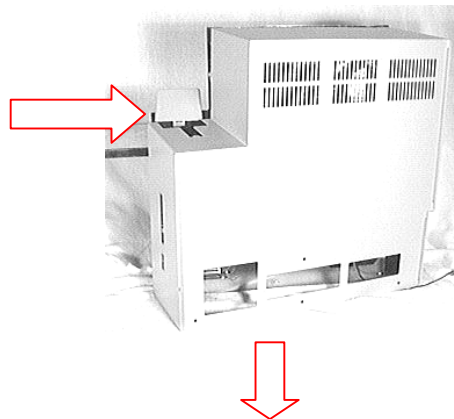
- loosen 10 cross recessed screws in front - and 3 cross recessed screws backwards the rear metal cover can be removed



- **Attention: Mounted to the metal cover you will find the fan - the fan is mounted as well to the board!**



- disconnect the fan from the I/O board
- the display cover will stay to the unit



Tooling

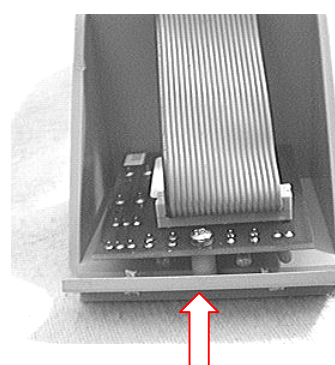
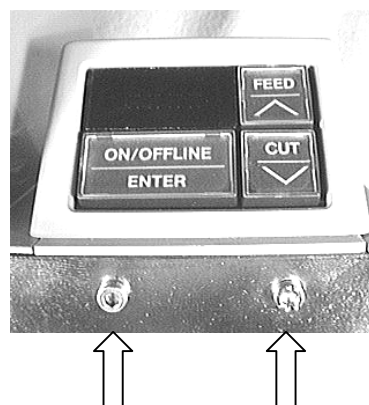
cross recessed head size 1
screw driver small



Display cover

Disassembly - assembly

- remove rear cover
(see rear cover)
- loosen two cross recessed screws -
and the display cover can be removed
- display and cover are fixed together
- loosen one cross recessed head screw
and the display can be separated from
the cover
- unplug the display from the CPU board



Tooling

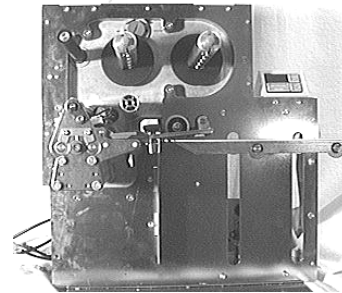
cross recessed head size 1

Print module

The print module can be removed completely from the printer.

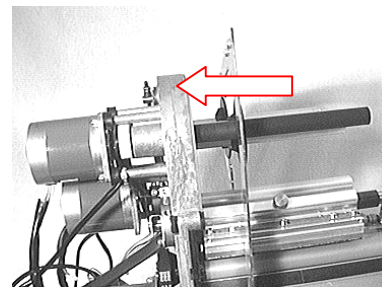
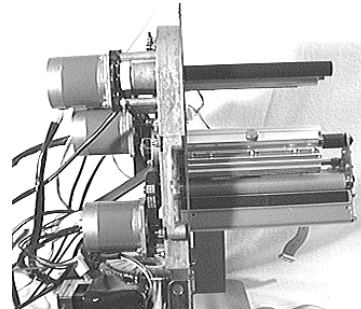
Built to the cast-metal case are the feed unit, the material guiding, ribbon unwind, ribbon rewind and ribbon transport.

As well the parts belonging to this components.



Disassembly - assembly

- remove the rear cover (see **cover**)
- unplug stepper motor and sensor connector
- remove ground wire from the main cover
- remove board and board carrier (see electronic)
- loosen fixation screws of print module (8 hexagonal screws)



Tooling

hexagonal socket 3 mm
cross recessed head size 1

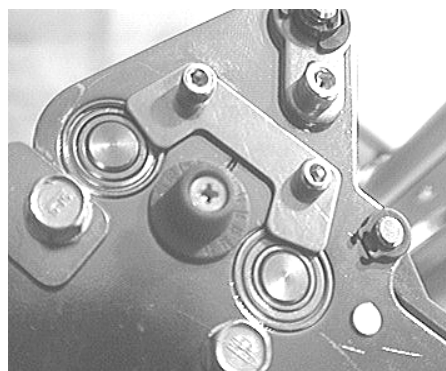
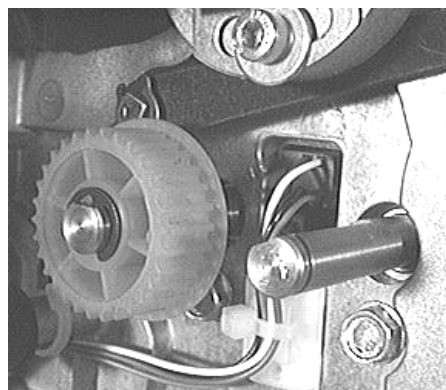
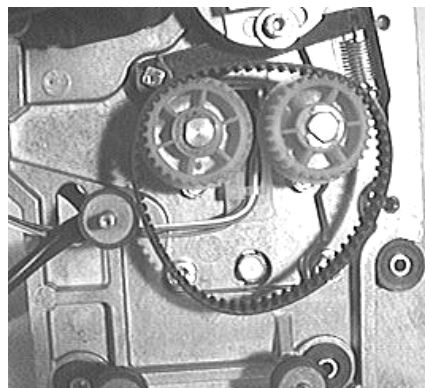
Feed unit

The complete feed unit assembly consist of feed roller (2 pieces), pressure unit, thermal head assembly, material guiding and gap sensor.

Feed roller

Disassembly

- remove the rear cover (see **cover**)
- loosen feed stepper motor and remove (3 self locking hex nut's)
- remove toothed belt
- loosen thermal head (knurled screw) and open
- remove lock washer from gear and loosen gear from feed axle - remove gear (small screw driver)
- remove tab washer on the out side (2 hexagonal screws)
remove feed roller to the out side

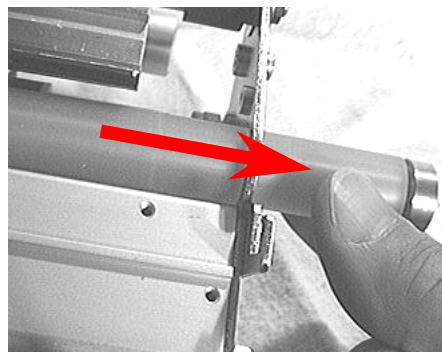


Assembly

- assemble feed roller (1 and 2)
- mount tab washer, assemble gear and fix with lock washer
- check free run of roller

Tooling

hex socket wrench SW 7
hexagonal socket 2,5 mm
screw driver medium size



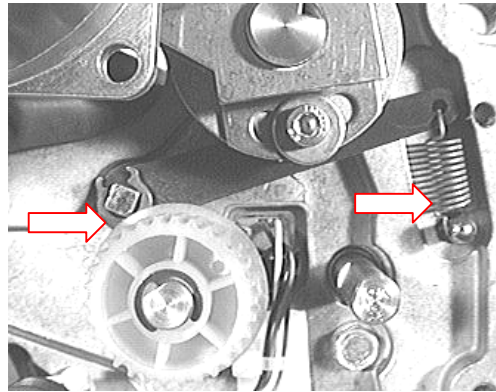
Pressure unit

Two adjustable pressure roller belong to the pressure unit - the pressure to the feed roller can be removed by pressing the red lever on the out side.

Then manual feed of material - forwards and backwards - is possible.

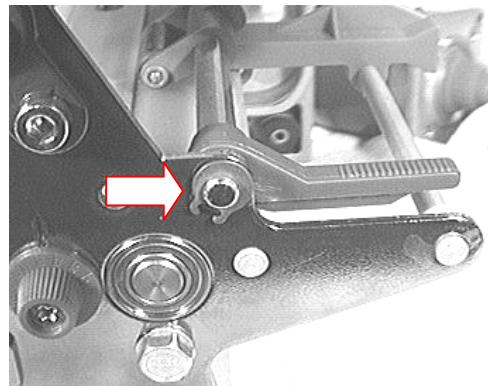
Disassembly

- remove rear cover (see **cover**)
- remove contact pressure - unhinge **spring**
- remove inner lock washer
- remove outer lock washer
- withdraw axle
- change pressure roller if necessary



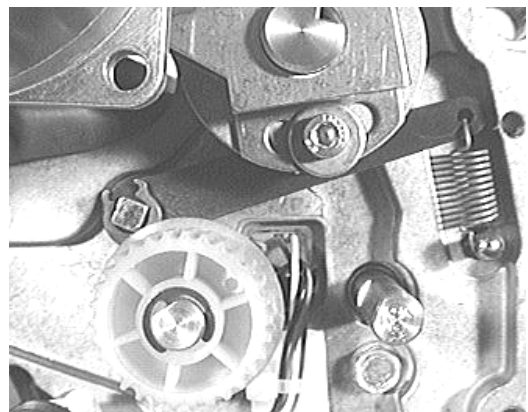
Assembly

- insert axle
- fix inner and outer lock washer
- hinge **contact pressure spring**
- adjust pressure roller to position



Tooling

pincer for lock washer
pincer



Thermal head

The thermal print head is a high sensitive unit - mainly sensitive against static electricity ! Be aware - before touching the thermal head - that you remove static electricity from your body. As well if the printhead is disassembled.

The damage is not - visible - ad once ! It is possible that the static works for a period of time - and then blow the head.

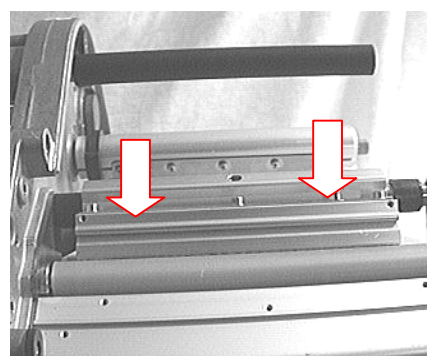
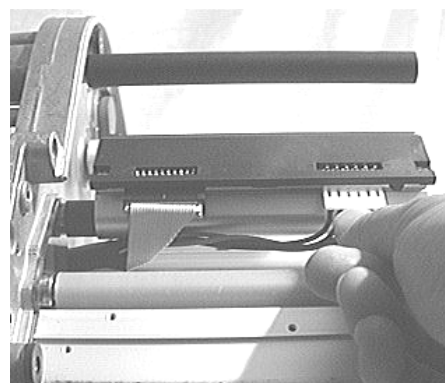
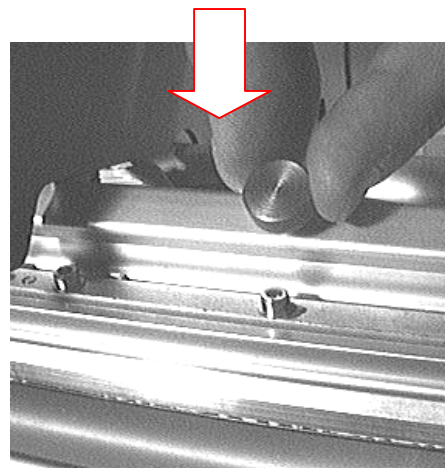
Mounting support

Disassembly

• **Attention:** Before following the next steps
- remove the printer from power supply.

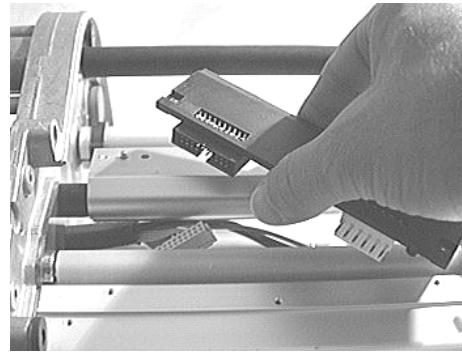
- loosen the print head with knurled screw
- swing out of the way the thermal head (cleaning position) and unplug power- and signal connector
- open both fixation screws (2 hexagonal screws)

• **Discharge !** Carefully remove the thermal print head out of the guiding pins.



Assembly

- **Discharge !** Insert thermal print head to guiding pins
- Fix with both screws
- plug in - power and signal connector and fix head with knurled screw

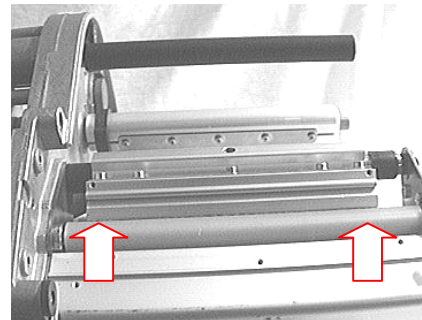
**Tooling**

hexagonal socket 2,5 mm

Adjustment

Has a thermal print head to be replaced, it could be - reasoned by manufacturing tolerances in this part, necessary to adjust the part ! A factory adjustment was done before - if possible this adjustment should not be changed.

- by factory adjustment - the position bar is adjusted with a tool to a fixed position
- the manual adjustment is done by two screws (hexagonal) in the front area of the mounting support profile
- moving the screw clockwise will move the thermal head backwards - turning counter clockwise will move the print head forwards
- to adjust the print head - all 5 hexagonal screws have to be opened
- using the both hexagonal screws in front of the profile - the thermal head has to be adjusted to a perfect print position (best print result !)
- fix the 5 hexagonal screws again

**Tooling**

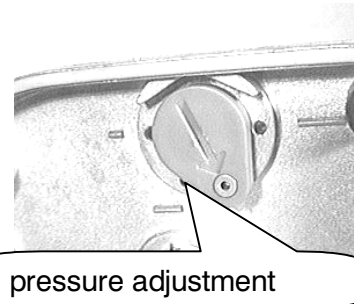
hexagonal socket 2,5 mm
hexagonal socket 1,5 mm

Contact pressure

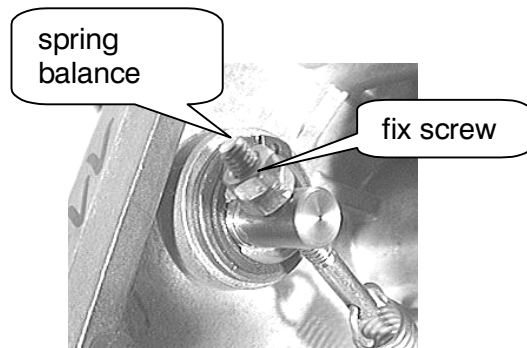
The thermal head is pressed with a constant pressure against the material and feed roller - done by an adjustable spring .

Given by the media width - or thickness this pressure has to be adjusted !

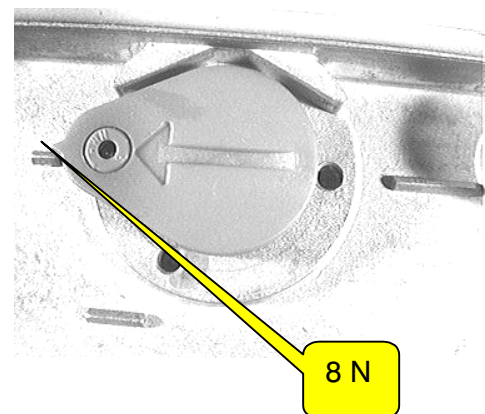
- in the unit there is a pressure adjust element
 - **to reach from the outside -**
 - three levels of pressure are available
- a spring loaded pressure part fits into the decided position and fix the pressure to the selected value

**Assembly / Disassembly**

- loosen the lock washer - remove the screws and unhinge the spring - then the adjustment knob can be removed.

**Adjustment**

- - adjustment knob to level small (short stroke)
 - connect coupling part with spring
 - loosen security screw
 - adjust by using a spring balance a torque of 8N
 - fix with screws



The value for level middle and wide are adjusting automatically !

Tooling

pincer lock washer
 spring balance 0-50 N
 fork spanner SW 7
 coupling part

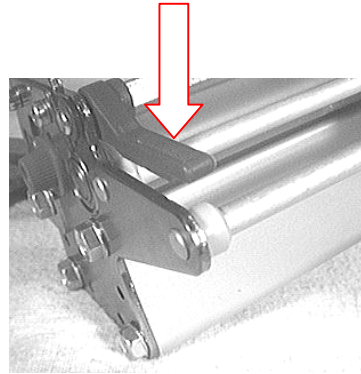
Material guiding

The material guiding is - built on two axle - fixed with two clamping rings in the left and right base plate. The outer media guiding is adjustable - by moving the guiding free on the axle - the inner one is fixed on the zero line.

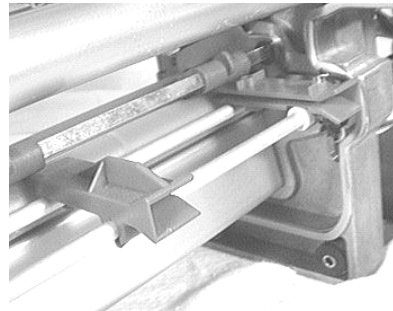
Mounted to the inner guiding is the media end sensor !

Disassembly

- loosen clamping rings on the outer side
- remove axles
- disassemble media guiding (attention to media end sensor)

**Assembly**

- assemble material guiding and axles (attention to sensor)
- adjust inner and outer clamping rings (perhaps fix with glue if necessary)
- adjust inner guiding to zero position - move outer guiding to media width

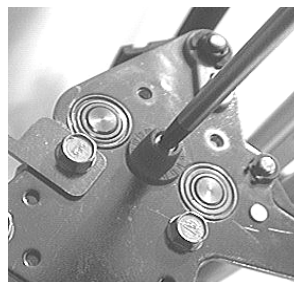


Gap sensor

The gap sensor (standard through light - optional reflective) is mounted to a plastic part. Adjustment to the correct position can be done by the red adjustment knob - to reach from outside.

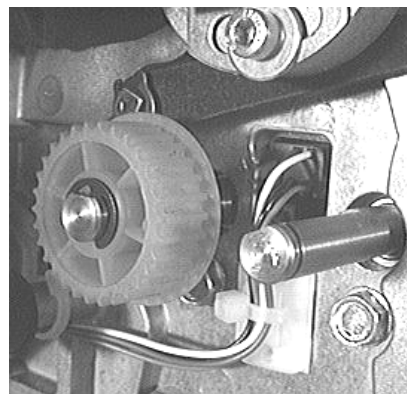
Disassembly

- loosen hexagonal screw inside of adjustment knob
- remove gear , toothed belt from feed roller 1 and 2 (see feed roller)
- sensor mechanic can be removed backwards - and if necessary replaced



Assembly

- grease the sides of the sensor mechanic and insert
- assemble feed system (see feed roller)
- fix adjustment knob with cross recessed screw (be aware of zero position)
- check sensor mechanic for easy moving



Tooling

cross recessed head size 1

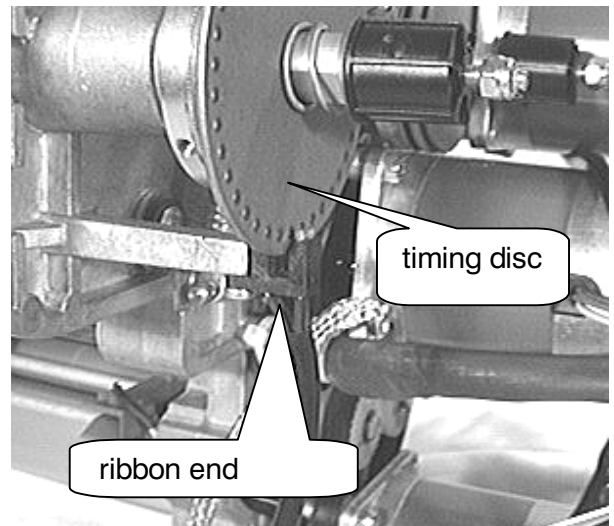
Ribbon transport

The ribbon transport - consist out of ribbon unwind, ribbon turning axle, ribbon transport axle and ribbon rewind axle - as well as the ribbon saving system, is together with the material handling the second important part of the print module.

Ribbon unwind axle

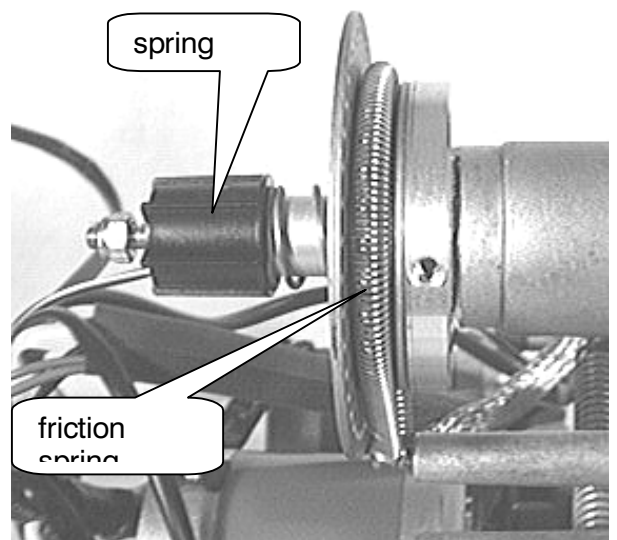
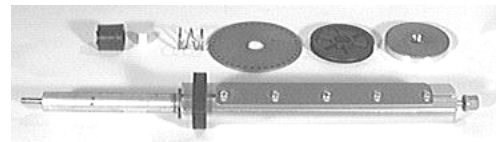
Disassembly

- unhinge brake spring and open self secure nut
- loosen spring cover part - to remove the timing disc
disassemble the foil end sensor
- remove limiting ring, spring, and timing disc
as well the belt disc
- loosen of both hexagonal screws and remove
bearing shell - then the ribbon axle can be removed
to the front side



Assembly

- insert ribbon axle - assemble bearing shell
- fix with both hexagonal screws
- assemble belt disc and timing disc
- fix spring, limiting ring and spring cover part
with self secure nut
- assemble ribbon end sensor and check sensor
- check function of unwind break and round run of
unwind axle



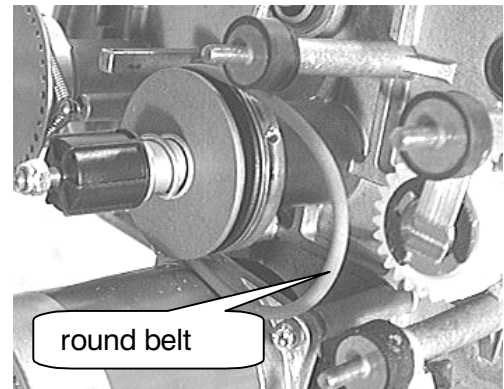
Tooling

fork spanner SW 7
hexagonal socket 2,5 mm

Ribbon rewind axle

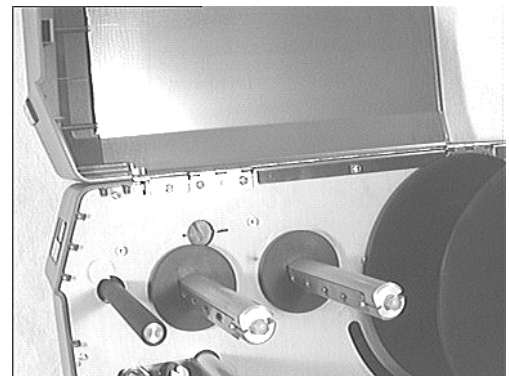
Disassembly

- unhinge round belt and loosen self secure nut
- loosen spring cover part and limiting part, remove spring and break disc as well the round belt disk
- loosen both hexagonal screws and remove bearing shell, move ribbon axle outside



Assembly

- insert ribbon axle and bearing shell, assemble round belt disc and break disc
- spring, limiting part and spring cover part fix again with self secure nut
- assemble round belt



Tooling

fork spanner SW 7
hexagonal socket 2,5 mm

Ribbon zero line adjustment

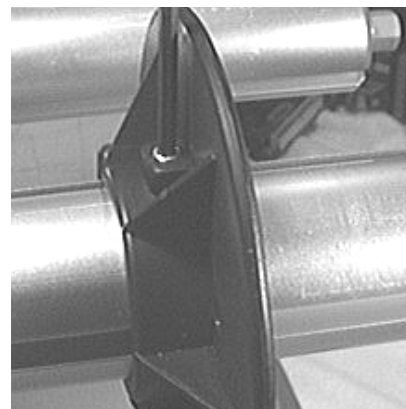
Moving zero line disc of unwind and rewind pin gives the possibility to separate media and ribbon zero line.

Adjustment

- loosen hexagonal screw in zero line disc
- move disc to new position and fix with hexagonal screw to new position

Tooling

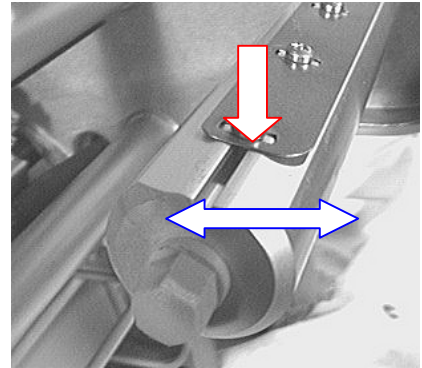
hexagonal socket 2 mm



Ribbon core break

Changing the position of the spring leaf gives more or less friction to the ribbon core.

- loosen cross recessed screws and adjust spring leaf to new position (A)
- fix spring leaf with screws
- if a thread is stripped - move the spring leaf to a slightly new position and fix again (B)
a new thread will be the result

***Tooling***

cross recessed head size 1

Ribbon guiding

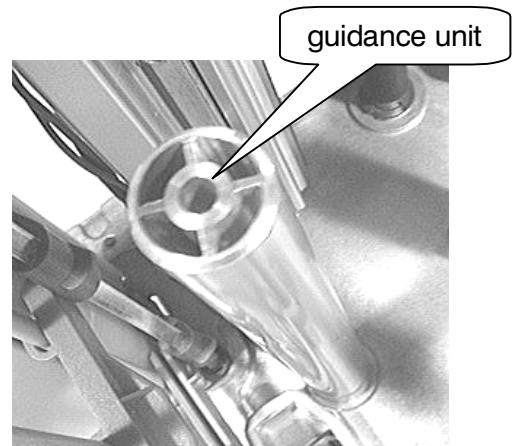
This axle is used to feed the ribbon without touching other parts into the thermal print head.

Disassembly / Assembly

- loosen screw in the cast metal case
- remove guidance unit to the front side

Tooling

box spanner SW 10

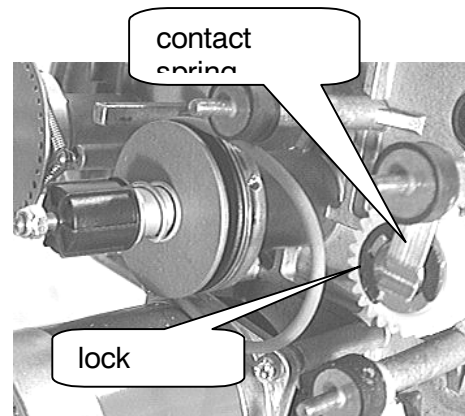


Ribbon feed / -roller

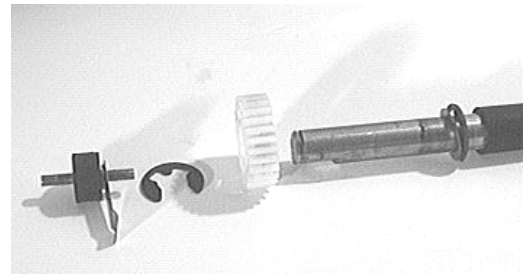
Normal ribbon transport and material transport are running with the same speed 1 : 1. The ribbon transport is done by the ribbon transport axle - rewind is done via friction clutch and the used ribbon is rewound to the rewind axle. If the ribbon saving system is activated the thermal print head is moved away from the feed roller - the stepper motor stops and only material is fed.

Disassembly

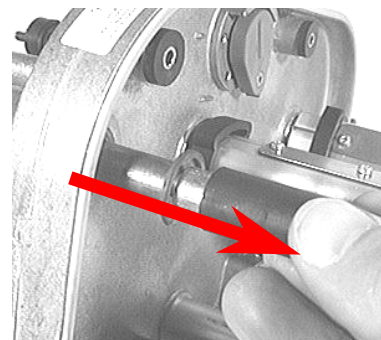
- loosen the three nuts to remove the ribbon stepper motor - unhinge round belt and remove the stepper motor
- loosen of lock washer
- remove gear
- the ribbon transport axle can be removed to the front side

**Assembly**

- insert ribbon feed roller from front side
- assemble gear and fix with lock washer
- check if roller is moving round and easily
- fix stepper motor with the 3 nuts - check that the tooth of the gears fit
- suspend round belt

**Tooling**

box spanner SW 7

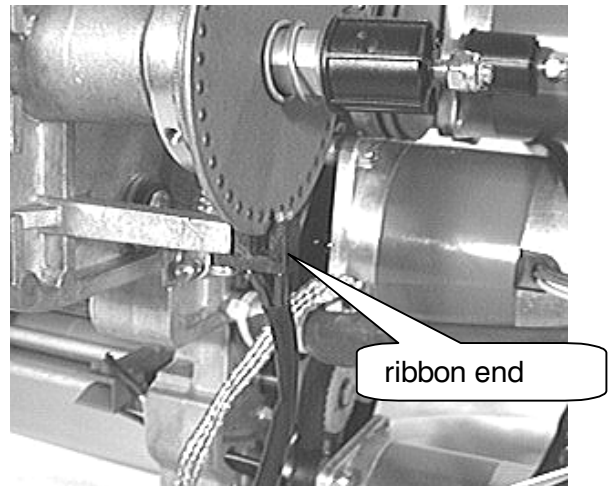


Ribbon end sensor

The ribbon end sensor is used to recognise a broken ribbon or end of ribbon !
A moving timing disc is watched constantly .

Assembly / Disassembly

- loosen hexagonal screw
- change sensor if necessary
- fix sensor with hexagonal screw

**Tooling**

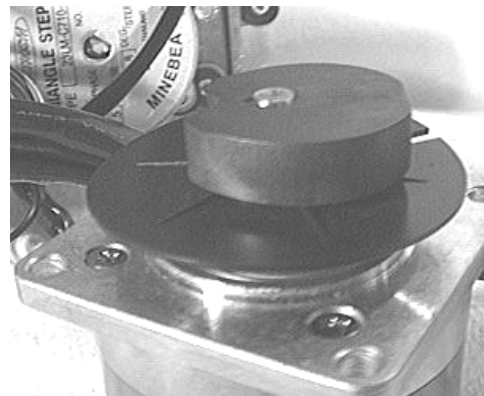
hexagonal socket SW 2,5

Ribbon saving mechanism

The ribbon saving mechanism is working by moving the thermal head away from the feed roller - stop the stepper motor for the ribbon transport - and feed only material.

Disassembly / Assembly

- loosen the sensor for head home position
by opening the cross recessed screw
- unhinge the pressure spring
- remove stepper motor for head movement
by opening the three hexagonal screws
- the timing disc can be rotated after opening of
one hexagonal screw
- the lever can be untied by loosen the hexagonal
screw
- disassemble pressure disc by opening of one hexagonal screw and remove disc from the
axle



Exchanging the print head

Note: For a description refer to the Service Manual TTX x50/Wildcats, topic section "Service Print Module", chapter "Removing the print head".

Print head adjustment

Note: For a description refer to the Service Manual TTX x50/Wildcats, topic section "Service Print Module", chapter "Adjusting the print head position".

Material feed

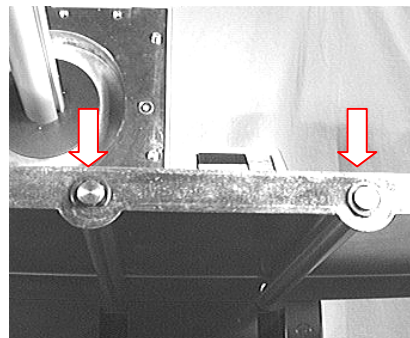
The media feed consist out of lift table - the consisting lift mechanic, the label stop and the separator. Controlled is the system by the sensor - material speed, material position and magazine - end position. The material feed can be used for single label, strips and fan folded label.

Lift table

The lift table is used to store the label stock. Out of this label stock the label is separated and fed into the print module.

Disassembly - Assembly

- loosen the two lock washer and the lift table can be removed from the axle's



Tooling

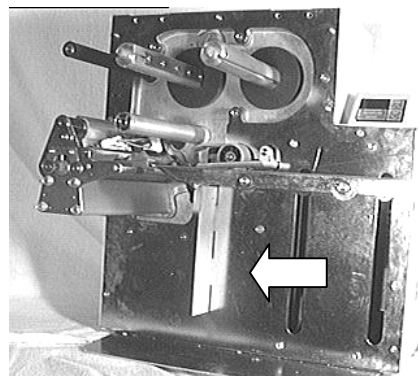
small screw driver

Label stop

The label stop is used to stop the label stock at a defined zero position.

Disassembly - Assembly

- loosen both cross recessed screws and the label stopper can be removed



Tooling

Cross recessed head size

Lift mechanic

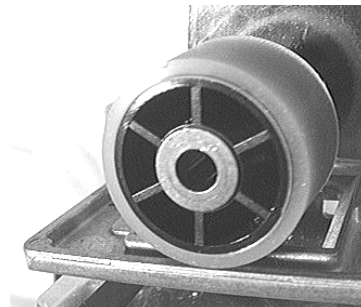
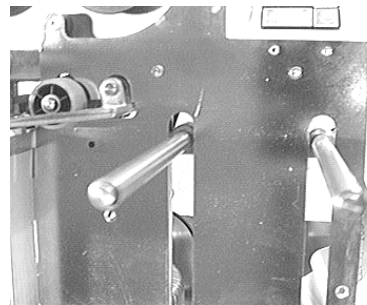
The lift mechanic is used to move the label platform to the correct position - the movement is controlled by a infra red sensor - the zero position in the lower end is controlled via a micro switch.

The 'play together' of this components is very critical and has to be adjusted very well - otherwise the label separator is not working.

Note: To work on this unit it has to be disassembled completely ! Only the moving weal can be removed without disassembling the lift mechanic !

Disassembly - Assembly

- remove the rear cover
(see cover)
- disassemble board and board carrier (see electronic)
- remove lock washer from feed axle
and the feed roller can be removed
- if necessary clean !!!!!
- loosen the hexagonal screws and the
lift mechanic can be removed



Tooling

Hexagonal socket 3 mm
cross recessed head size 1
screw driver

Lift motor

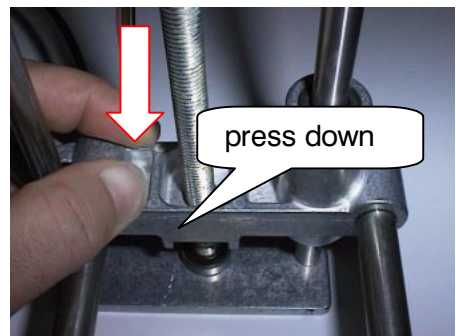
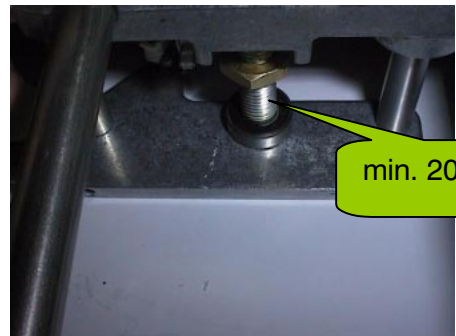
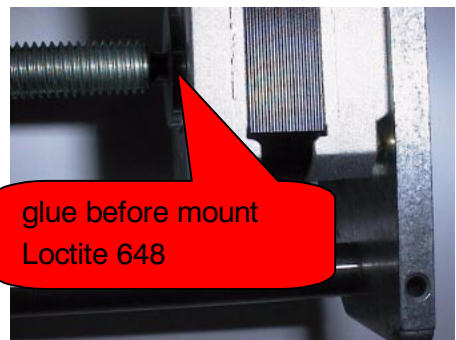
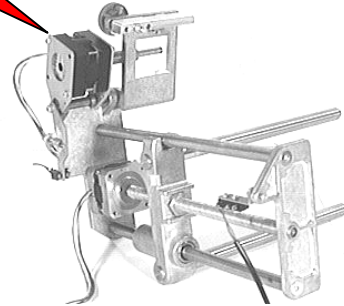
The lift motor is moving the label platform together with the label stock. Using the display key's UP and DOWN the label platform can be moved manually!

The motor and the thread axle are glued together - they can be changed only as an assembly.

Disassembly - Assembly

- remove rear cover (see cover)
- disassemble board and carrier (see electronic)
- disassemble lift mechanic (see lift mechanic)
- loosen lower metal casting plate (2 hexagonal screw)
- remove fork nut from thread axle
- clean new motor and axle by using acetone
- glue motor and axle together using Loctite 648 and assemble the unit again
- adjust fork nut – 20 mm from the lower end
- the unit has to stand vertically then press the block down
- the glue is hard 30 minutes later – but you can assemble the unit immediately
- loosen the two screws - the motor is mounted with - motor and thread axle can be removed

torque = 30



Tooling

hexagonal socket 2,5 mm
hexagonal socket 3 mm
cross recessed head size 1

Magazine end switch

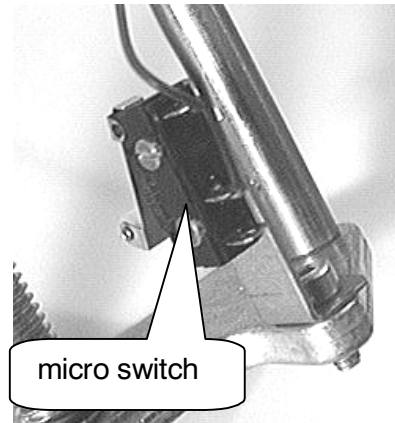
The switch is used to stop the label magazine in the lower end position. The sensor can be checked via display (see electronic) !

Disassembly - Assembly

- loosen the two hexagonal screws - and the switch together with the metal mounting plate can be removed

Tooling

hexagonal socket 3 mm

**Magazine sensor**

This sensor is used to control the moving speed of the label platform. The platform is running up with high speed as long as the sensor is not covered by label material.

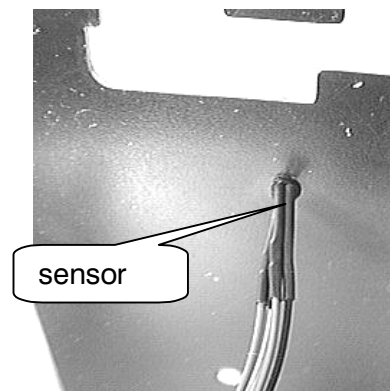
As soon as the sensor is covered - the lift motor frequent is changed to lower speed. The function can be checked via display (see electronic) !

Disassembly - Assembly

- the sensor can be dismounted - by using a pin to move out the defective sensor
- clean the hole and glue the new sensor in

Tooling

pin
glue



Attention : The sensor should be one the same level as the front plate (surface) !

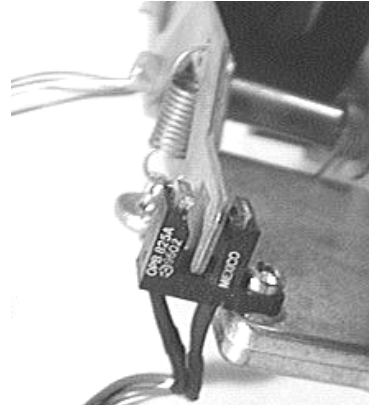
Separator sensor

This sensor is used to move the upper side of the label stock - after one label (strip is removed - to the level before.

The sensor can be checked via display (see electronic) !

Disassembly - Assembly

- loosen screw - and the sensor can be removed and if necessary be changed

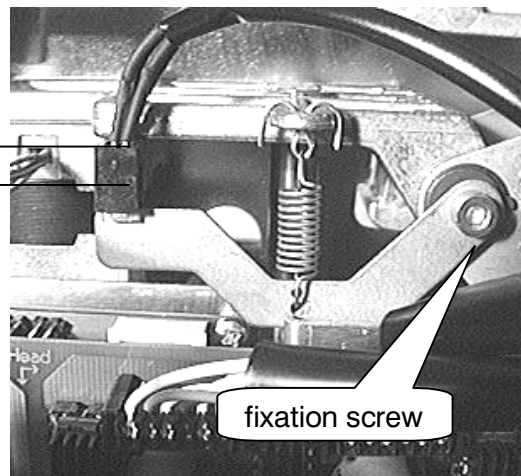
**Tooling**

cross recessed head size 1
hexagonal socket 3 mm

Adjustment

- loosen screw to adjustment plate
- move measurement (6mm) into sensor and fix plate
- tie screw

measurement 6 mm



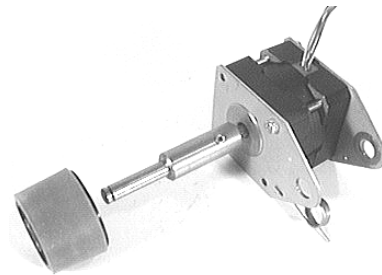
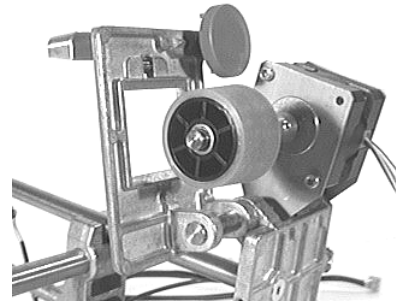
Attention : The spring has to be mounted in the lower hole !

Feed motor

**This stepper motor feeds - after successful separation - the label into the print module
The complete separator unit is spring loaded.**

Disassembly - Assembly

- the lock washer has to be removed
by using a screw driver
- loosen the hexagonal screw - and the
positioning part can be removed
- remove lock washer with pincer
- motor can be removed - look to the spring
- remove feed wheel from motor
- change stepper motor if necessary



Tooling

pincer
hexagonal socket 2 mm
hexagonal socket 2,5 mm
hexagonal socket 3 mm

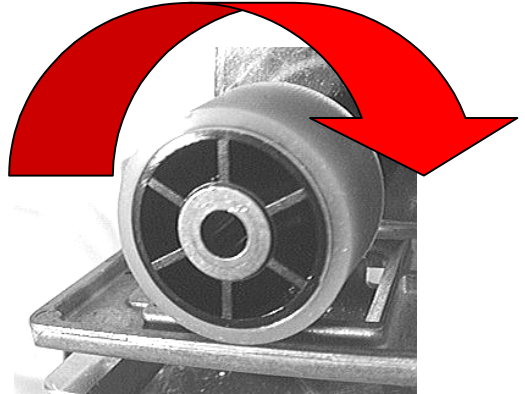
Feed roller

This roller is used to move the media from the separator to the print modul. The roller has to be cleaned in regular distance !

Disassembly - Assembly

- the feed roller can be disassembled without disassembling the lift mechanic complete
- remove the lock washer from the feed axle

Attention : The roller must be cleaned regular !



Tooling

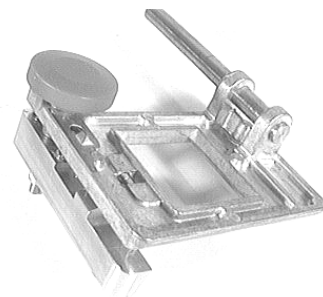
screw driver
cleaning fluid

Separator edge

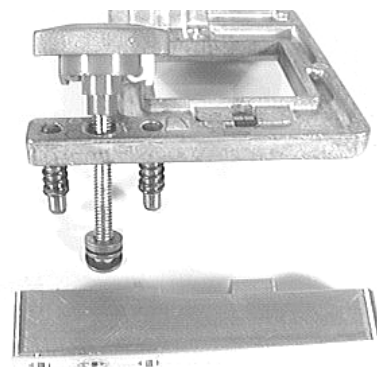
The separator edge is used to feed only 'one' label via the separator to the print module. the separator edge can be adjusted ! The width of the slot has to be more then the width of one label and less then the width of two label !

Disassembly - Assembly

- remove the complete lift mechanic
- adjust separator edge new - or remove it separator
- the pressure spring can be changed



- loosen the self secured hexagonal nut and separator edge - springs and adjustment knob can be changed
- remove the adjustment knob together with the marker from the separation edge
- the springs can be changed as well
- check during assembly that the parts are fitting together and move easily

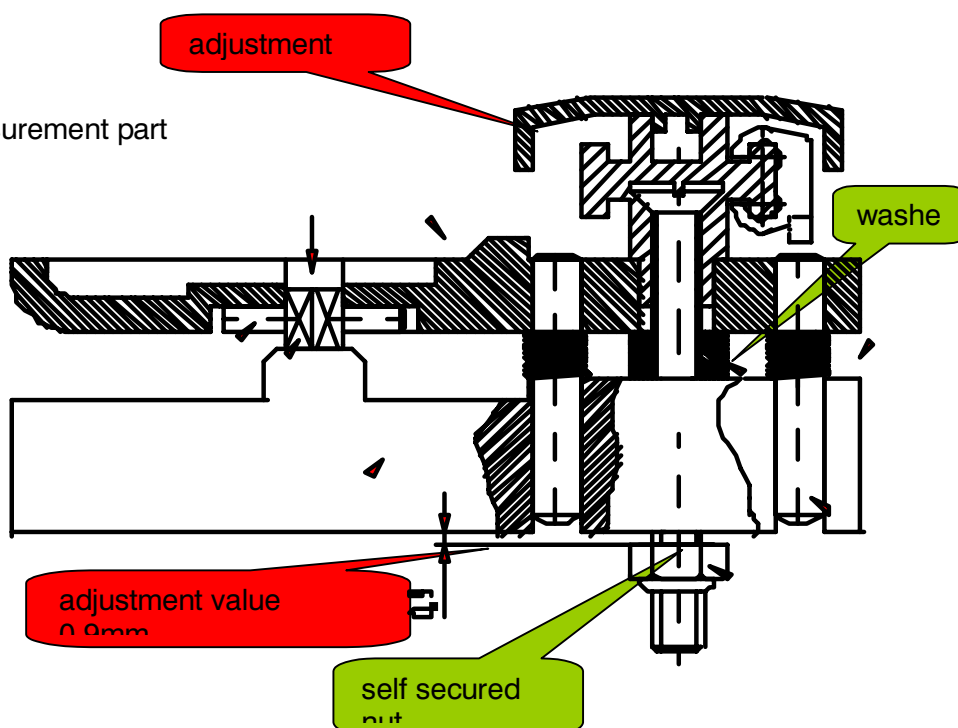


Tooling

measurement
fork spanner SW 6

Adjustment

- to adjust the separator follow this steps
- adjust separator edge with the adjustment knob to zero position - the 4 washer are the limit
- then open the self secured nut until the opening between nut and separator edges is 0.9 mm
- adjust with measurement part



Short Tag Option (second feed for short label)

This option was developed to handle short label (from 50 up) with the unit. This is normally not possible. The so called short tag option is a second feed driven by the feed roller

The label is ejected through the separator – overtaken by the short tag option and driven to the main drive

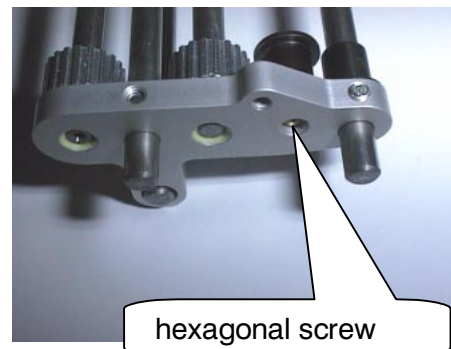
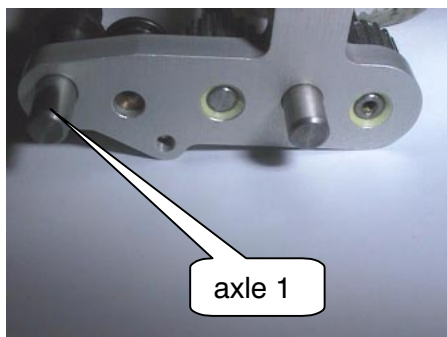
Attention: The option can be mounted to a unit with a serial number higher then SN 04731xxxx-xxx ! This can be done only by a service technician.

Disassembly - Assembly

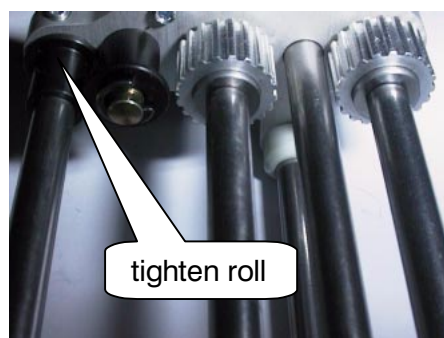
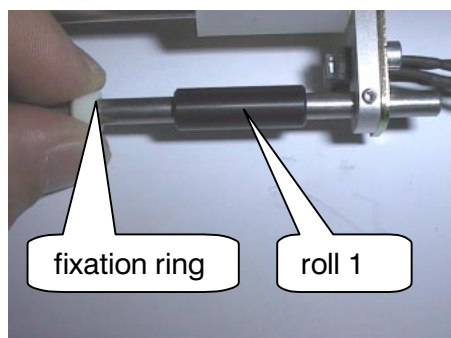
- remove pressure from the pressure roller on the feed axle by unhinge spring (the spring will be changed later to a new one)
the feed roller has to be disassembled, as well the axles of the media guiding and the guides
The guides are not more used with the short tag option – the sensors used before (mounted and glued to the inner guide) are replaced by a new sensor.



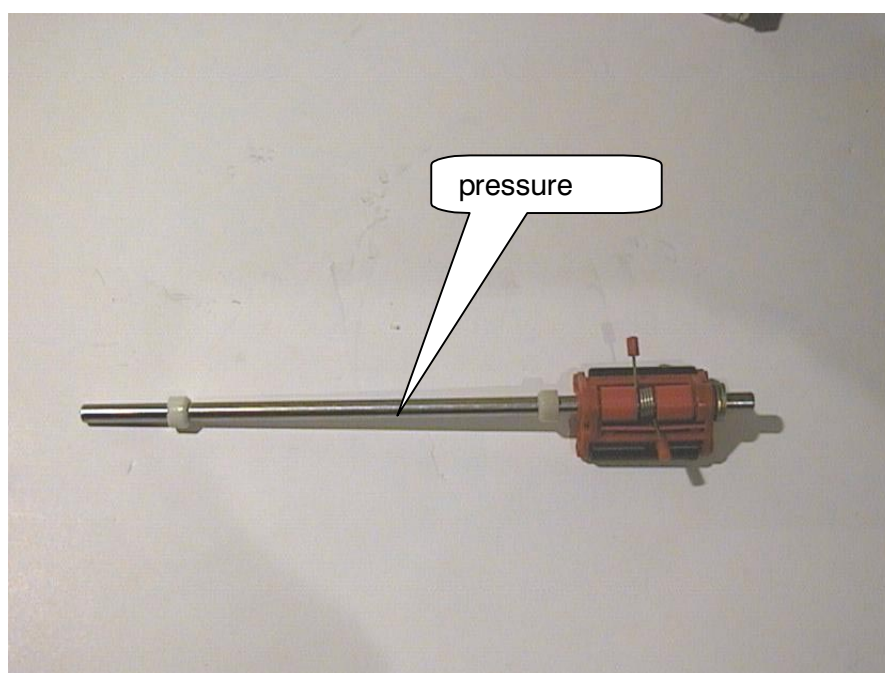
- remove the axle 1 of the assembly (open two hexagonal screws)



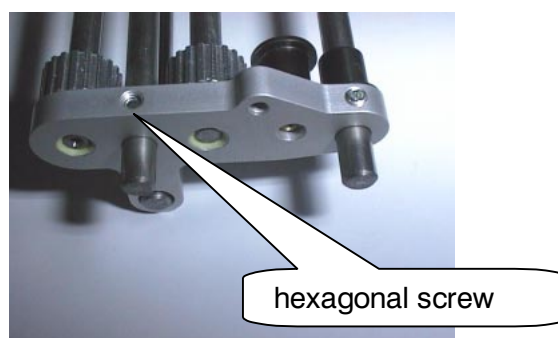
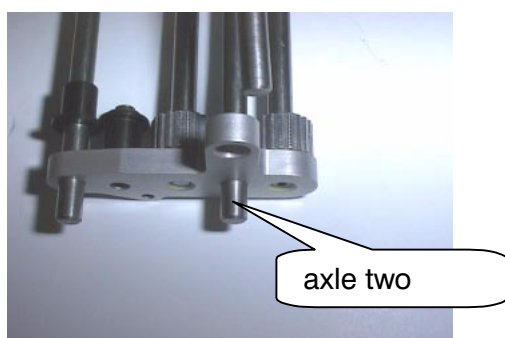
- remove tighten roll, roll 1 and the fixation ring – you will need them later



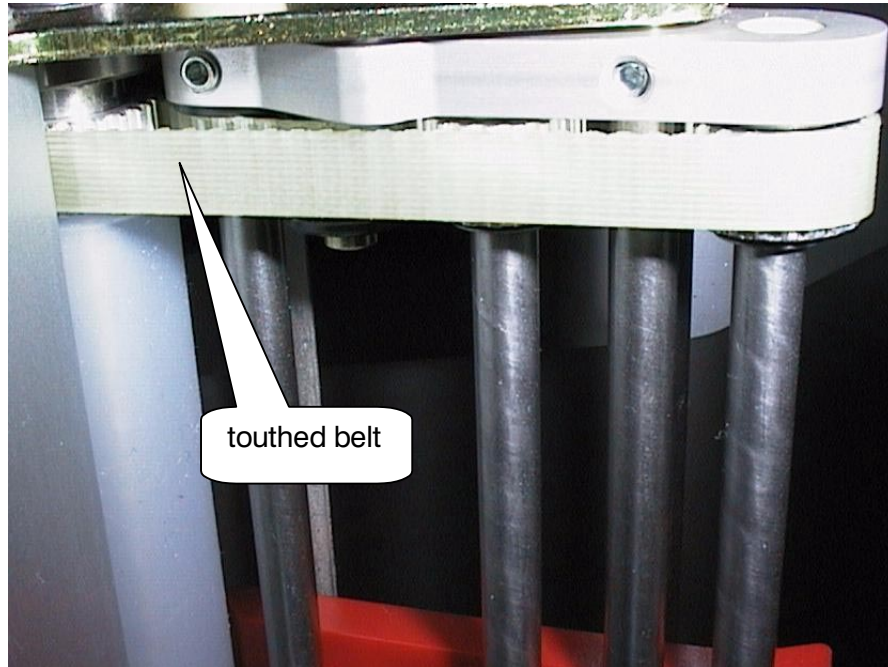
- the pressure roller have to be removed with the axle



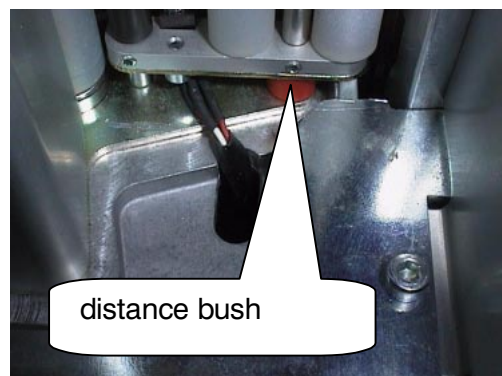
- loosen the second axle by opening the two hexagonal screws



- assemble the short tag option and the new feed roller together – watch carefully the belt and how the belt is guided. The belt has to run around the feed roller and the two gears mounted to the axle.

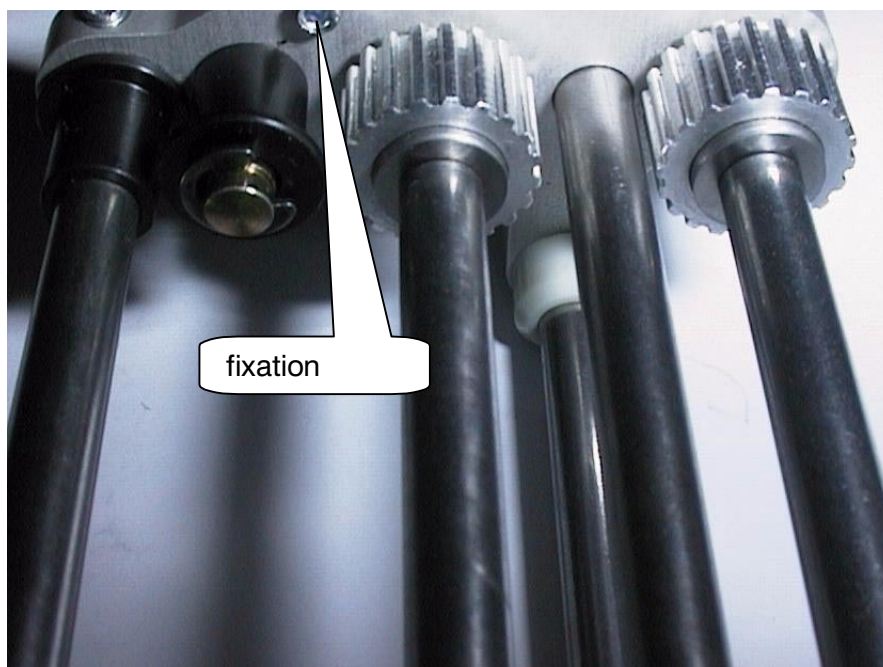


- insert axle 1 again – assemble roll 1, fixation ring and tighten roll to the axle – insert the axle into the bush of the steal plate – the assembly is hanging down
- remove second axle – add the bush of 8 mm between assembly and steal plate
- move the short tag option up and insert the second axle

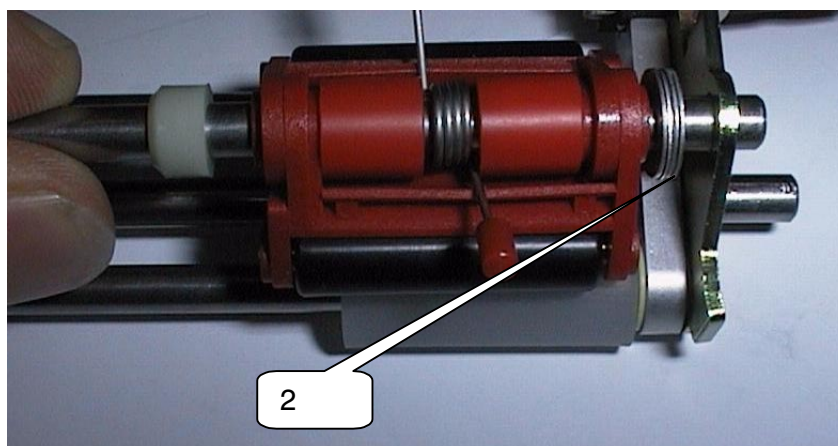


- the transport axles have to run very smooth – the inner screws on the axle 1 and axle 2 tighten (the inner plate is pressing against the bush – the bush against the steal plate)
- move the outer plate in a way that the axles have between 2/10 and 3/10 mm movement the axles have to run smooth and easy – then tighten the first and second axle

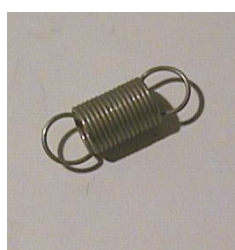
- now use the hexagonal screw in the outer plate to adjust the assembly between the two feed block plates – the complete block is moved into the direction of the steal plate and fixed



- assemble the pressure roller again – be aware of the washer – they are used to give a distance of 2 mm



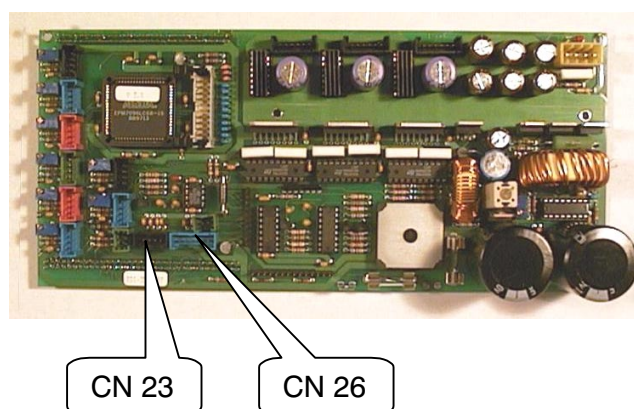
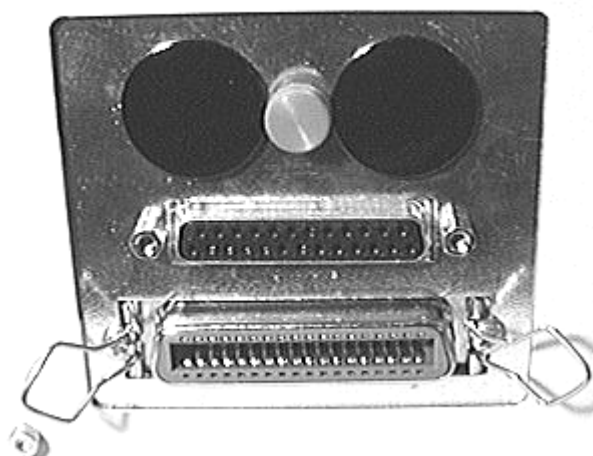
- change the pressure spring against the new spring



- change the lever position on the axle 90 degree

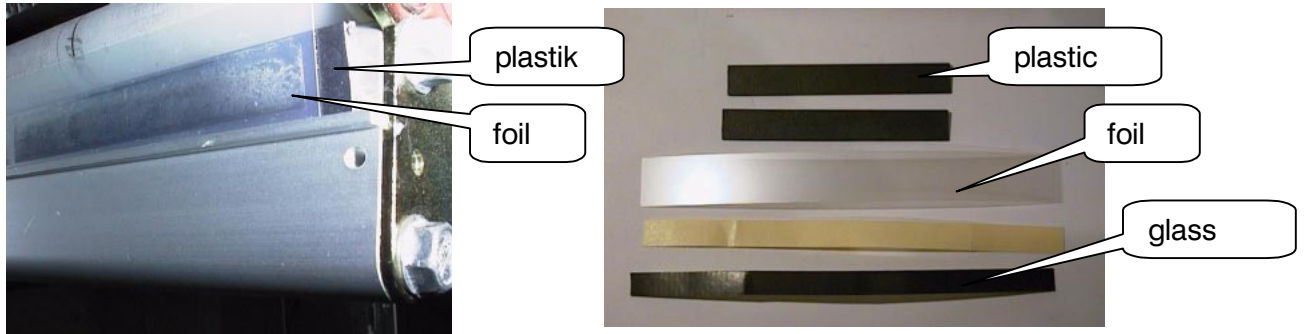


- insert power stacker preparation, 5 pin connector at the rear side of the cover, 4 pin connector to CN 23 and 6 pin connector to CN 26 on the I/O board

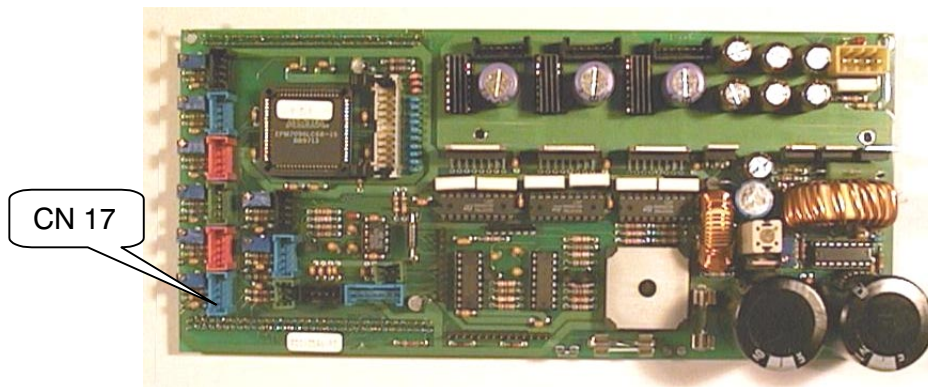


- the turn away parts have to be assembled in the following way to the profile

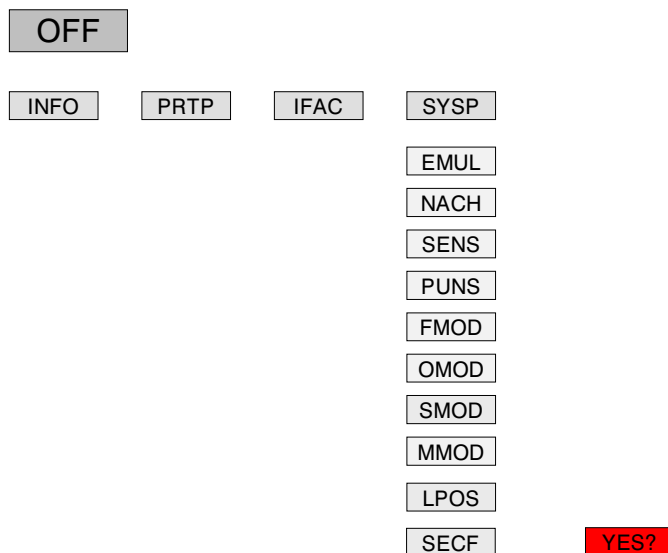
- 1 plastic part (s) (thicker part up!)
- 2 turn away foil
- 3 glass fiber cover

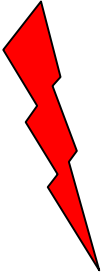


- connect the sensor to CN 17 I/O board – check that the media end sensor is out of function by using sensor menu point M xx, check that M 15 is shown on the display



- activate the short tag option using menu point SECF (select YES)





Electronic

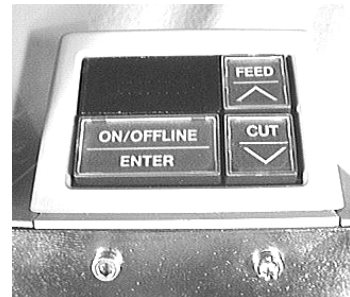
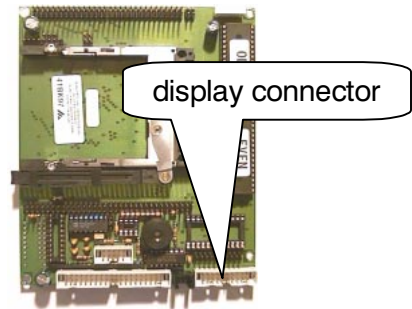
Before working on the electronic - remove the printer from power ! Discharge static from your body - before touching electronic parts.

Follow the security tips - working with electronic devices. Only trained people are allowed to do this work !

Display

Disassembly - Assembly

- opening the rear cover - then it is possible to unplug the connector from the CPU board
- unplug connector from the CPU board
- loosen two cross recess screws and remove display together with cover
- loosen one cross recess screw and you can remove the display from the cover
- check that the display cable is running without touching edges or is bent



Tooling

cross recessed head size 1

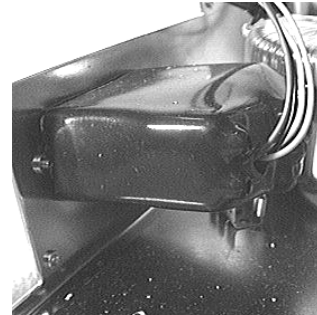


Transformer

Before working on the electronic - remove the printer from power !

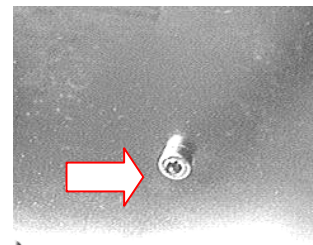
Disassembly - Assembly

- remove rear cover - unplug all transformer wires from filter unit - and I/O board (plug and wire position see diagram)
- loosen fixation screw at the bottom of the cover (1 hexagonal screw)
- the transformer can be removed if necessary



Tooling

hexagonal socket 5 mm



Power connector

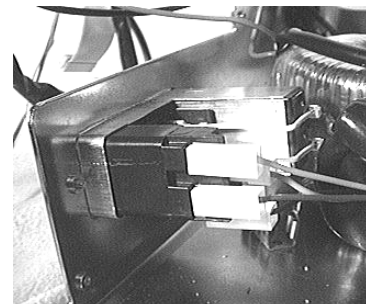


Filter - main switch, power select switch and the fuse cover are part of the power connector. Only the fuses can be changed separate - all other components belong together.

Attention: Unplug unit from power - before working on this device !!!

Disassembly - Assembly

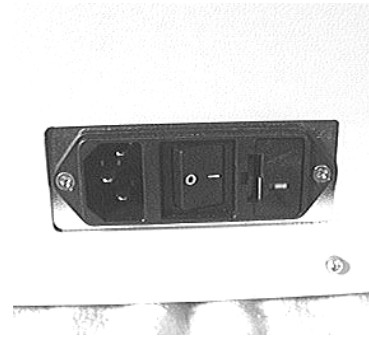
- change fuses - by removing the fuse cover and change the blown fuses
- **use only the correct value of fuse !!!!!**



- unplug transformer from filter unit
- loosen two cross recess head screws and remove the filter unit

Tooling

cross recessed head size 1



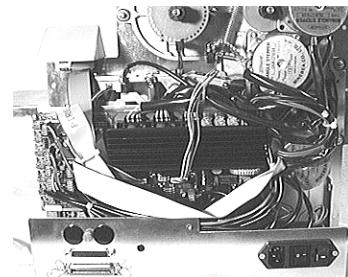
I/O board

The I/O board is the board m controlling stepper motors, sensor's - power supply and options !

Adjustment will be done on this board if necessary - as well all connectors are placed on this board - without interface's and display.

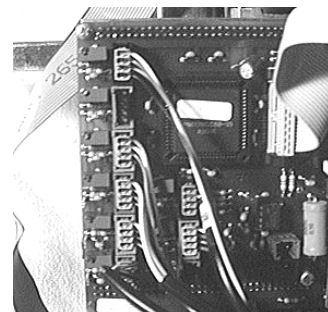
Disassembly - Assembly

- loosen all connectors
- loosen all fixation screws
 - 3 cross recess screws for the board
 - option board 1 hexagonal screw
- carefully remove the I/O board from the CPU board
- check that the pins are not damaged during connecting / disconnecting



Adjustment

- see sensor



Tooling

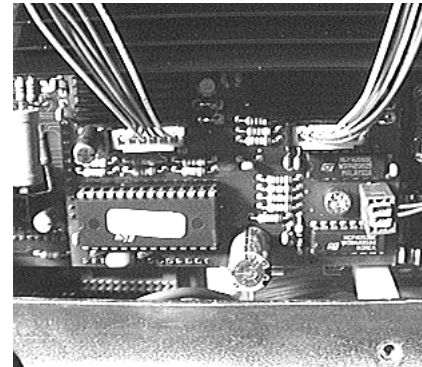
cross recess head size 1

Option board

Optional board's are board's - like cutter board or other - used for special applications or other optional features of the printer. It is not only the board - sometimes it can consist out of board, cable and connector !

Disassembly - Assembly

- loosen connector's
- loosen fixation screws
- remove carefully the optional board

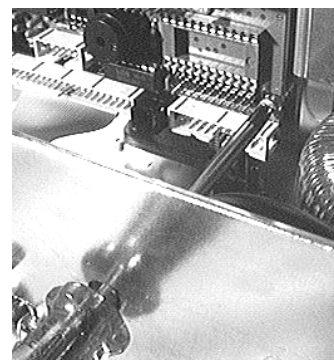
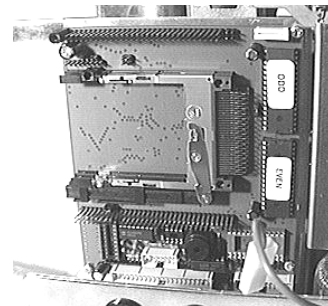


CPU board

The CPU board is the board - controlling the complete unit ! Build to the board is the processor - memory - interfaces (RS 232 - Centronics - RS 485 optional) - displayconnector and program / font memory !

Disassembly - Assembly

- disassemble the I/O board and maybe optional board (see I/O board)
- unplug connectors (display - interfaces)
- loosen fixation screws (3 cross recess screws 1 bolt) - the board can be replaced if necessary
- check during assembling the wires are running free
- **check during board assembly that the pins are connecting correctly and are not damaged**



Tooling

fork spanner SW 7
cross recess head size 1

Sensors

A sensor is eye ear and feeling for the printer. Printer sensor's are gap sensor, ribbon endsensor, material end sensor, head position sensor, knife home sensor, cover switch and maybe optional sensor's.

All these sensor's can be checked - and some adjusted to a defined value.

Sensor adjustment overview

Sensor	Setting condition	Pot.	Test point	Test point: Value	Display: Parameter	Display: Value
Gap sensor (transmission)	without material (sensor free)	P7			Pxxx	7
	with material					>7
Gap sensor (Reflex)	without material, hood closed	P5			Rxxx	7
	with material					>7
	Reflex mark					0...9
	white material					10...255
	no sensor connected					0
Ribbon end sensor	sensor over a hole of the oscillator disc (sensor free)	P8	CN34	Turn P8 anti-clockwise to the limit.	Fxx	0
	sensor covered			>2.5 V		15
Printhead sensor (Head position)	sensor over gap (sensor free) (autoecon. position, printhead raised)	P4	CN32	Turn P4 anti-clockwise to the limit.	Hxx	0
	Sensor covered (print position, lowered)			>2.5 V		15
Hood switch	Hood closed			check	Cxx	0
	Hood open			check		15
Material end sensor	without material (sensor free)	P1	CN30	<0.3 V	Mxx	0
	with material			>2.5 V		15
Speed sensor	without material	P9	CN33	<0.3 V	Oxx	0
	with material			>2.5 V		15
Separator sensor	Magazine at top position (sensor free)	P2	CN31	<0.3 V	Uxx	0
	Magazine not at top pos.			>2.5 V		15
Magazine Limit Switch	Magazine at bottom position			check	Dxx	0
	Magazine not at bottom pos.			check		15
Magazine sensor (Reflex)	without material (sensor free)	P6	CB14		Sxx	0...2
	with material			max. Wert		

Printhead voltage	Printhead	R25	CN29	25.5 V		
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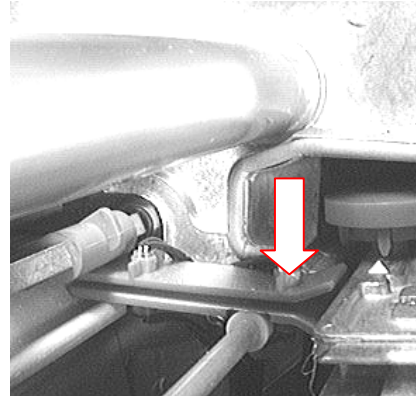
CAUTION! – Don't use the housing but the ground contact on the I/O board when setting the printhead voltage! Otherwise you will set the voltage too high, what will damage the printhead.

Material end sensor

The material end sensor is used - before parts of the printer are damaged (thermal head or other) - to stop the unit and display the status !

Disassembly / Assembly

- the material end sensor is placed in the inner material guiding - positioned at the front plate
- to assemble / disassemble see material guiding
- the sensor is glued to the guiding and can be replaced only as assembly



Adjustment

Connector : CN 9

Test point : CN 30

- see diagram -

Parameter : M xx

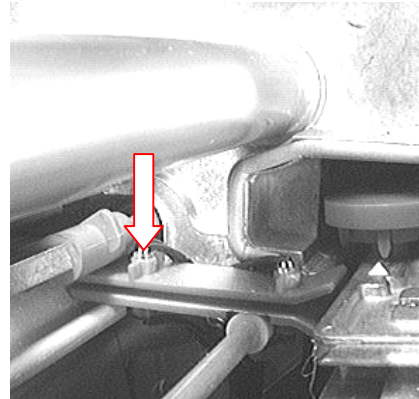
- check the sensor using parameter (SCHK) adjustment is described in user manual
- via menu select point M xx
- without material - display 'M 0' - adjust a value of <0.3 V at test point CN 30 with pot P1
- with material 'M 15' is displayed

Speed sensor

This sensor is used - to lower the media speed for a short time - before the label is introduced into the feeding system of the print module.

Disassembly - Assembly

- the speed sensor is mounted into the inner side of the media guiding
- to assemble / disassemble see material guiding
- the sensor is glued to the guiding and can be replaced only as assembly



Adjustment

Connector : CN 17
Test point : CN 33 - see diagram -
Parameter : O xx

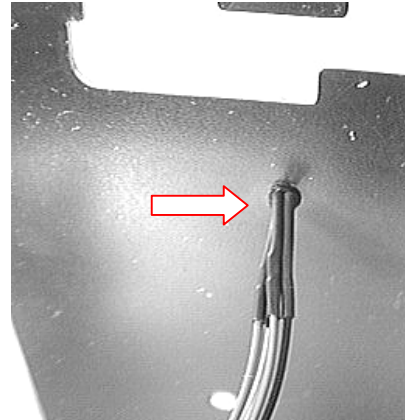
- check the sensor using parameter (SCHK) adjustment is described in user manual
- via menu select point O xx
- without material - display 'O 0' - adjust a value of <0.3 V at the test point CN 33 using pot P9
- with material 'O 15' is displayed

Magazine sensor

This sensor is used to adjust the speed of the platform to separate the label from the stock and feed it into the print module.

Disassembly - Assembly

- the magazine sensor is glued into the front plate
- to disassemble / assemble see lift mechanic
- be aware that the sensor is glued into the plate



Adjustment

Connector : CN 14

Test point : no

- see diagram -

Parameter : S xx

- check the sensor using parameter (SCHK) adjustment is described in user manual
- select the menu point 'S xx'
- a not covered sensor has to show a value of 0 - 2
- using pot P6 and adjust the highest possible value (this value is changing with a new sensor)

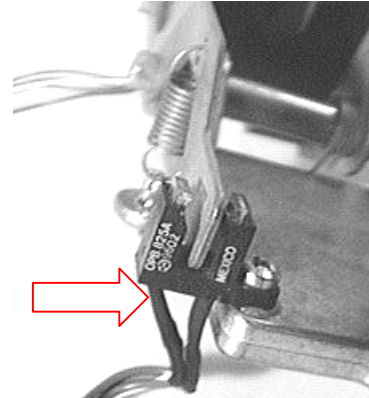
Attention : Important is the difference between the values !!!!!

Separator sensor

The sensor is used to adjust the position of the label stock. It is important to have always the same position .

Disassembly - Assembly

- the sensor is mounted to the lift mechanic
- to assemble / disassemble see left mechanic



Adjustment

Connector : CN 10 Test point : CN 31 Parameter : U xx	- see diagram -
--	------------------------

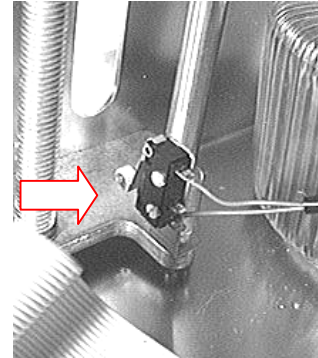
- check the sensor using parameter (SCHK) adjustment is described in user manual
- select via the menu 'U xx'
- without material - display 'U 0' - adjust a value of <0.3 V at test point CN 31 using pot P2
- with material 'U 15' is displayed

Magazine end sensor

The end sensor is used to stop the magazine in the lower end position.

Disassembly - Assembly

- the end sensor is mounted into the lift mechanic at the lower metal casting part
- to assemble / disassemble see lift mechanic



Adjustment

Connector : JP 3

Test point : no

Parameter : D xx

- see option board -

- check the sensor using parameter (SCHK) adjustment is described in user manual
- select via the display D xx
- the switch function can be controlled

Punch sensor

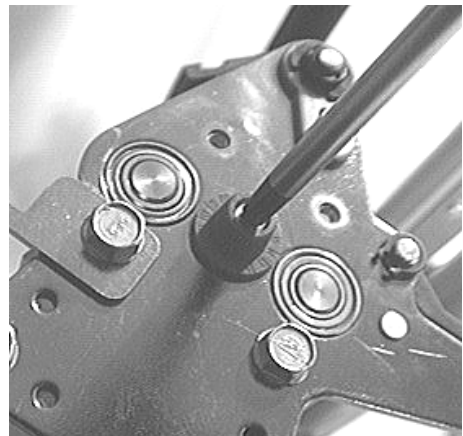
The punch sensor is used to recognise start / end of a label ! Different shapes of the label (round, rectangular, or other) - different material (cardboard, self adhesive, plastic and other) - or different usage (through light and reflex) need variable solutions. As well different materials need some additional features - like sensitivity to light.

Both sensor's - reflex and through light can be mounted to the same cover ! Reflex is optional !

Through light sensor

Disassembly / Assembly

- the sensor's are mounted to the feed unit
 - sensor position is adjustable from outside
- for assembly / disassembly follow the steps shown under feed unit



Adjustment

Connector : CN 15

Test point : no

Parameter : Pxxx

- see diagram-

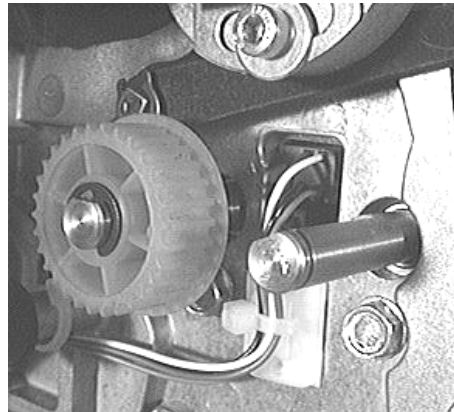
- to check the sensor use parameter (SCHK) adjustment is described in the user manual
- select the menu point Pxxx - and adjust with pot P7 a value of 'P 7' - without material !
- with material a value higher then 'P 7' is displayed

Reflex sensor

Attention - this sensor is optional !

Disassembly / Assembly

- the sensor's are mounted to the feed unit
 - sensor position is adjustable from outside
- for assembly / disassembly follow the steps shown under feed unit



Adjustment

Connector : CN 13

Test point : no

Parameter : Rxxx

- see diagram -

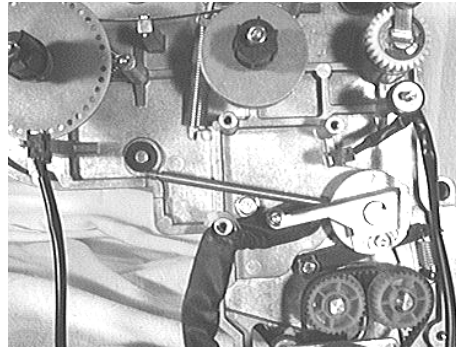
- to check the sensor use parameter (SCHK) adjustment is described in the user manual
- select the menu point Rxxx - and adjust with pot P5 a value of 'R 7' - without material !
- with material a value higher then 'R 7' is displayed

Printhead sensor

This sensor is used to check the actual position of the head.

Disassembly / Assembly

- the sensor is mounted to the print module
- for assembly / disassembly follow the steps described in point ribbon transport



Adjustment

Connector : CN 12

Test point : CN 32

- see diagram-

Parameter : H xx

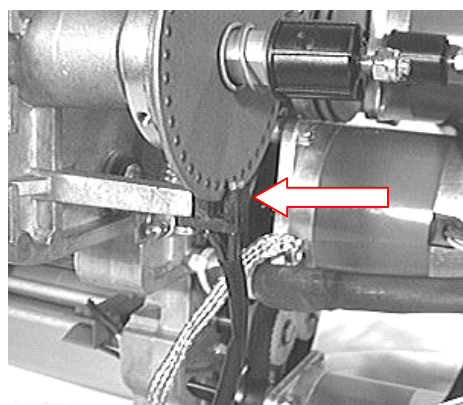
- to check the sensor use parameter (SCHK) adjustment is described in the user manual
- select via menu point H xx
- without disc (hole) - display 'H 0' a value of <0.3 V at test point CN 32 should be adjusted with pot P4 - with timing disc the display will show 'H 15'

Ribbon end sensor

This sensor is controlling the movement of the ribbon. Is this movement missing - if there should be a movement (ribbon saving will be considered) - a status message will be displayed.

Disassembly / Assembly

- the ribbon sensor is mounted to the print module - at the timing disc moved by the ribbon unwindaxle
- for assembly / disassembly follow the steps shown by point ribbon transport



Adjustment

Connector : CN 16

Test point : CN 34

- see diagram -

Parameter : F xx

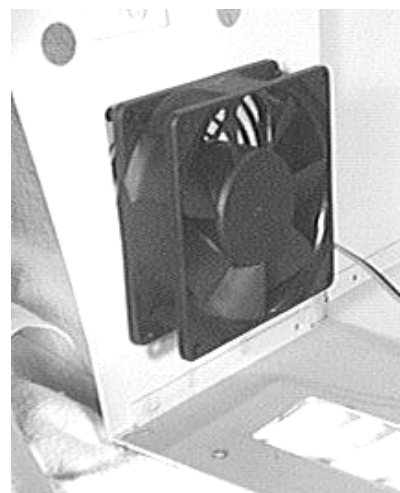
- to check the sensor use parameter (SCHK) adjustment is described in the user manual
- via menu select point F xx
- without timing disc (hole) - display 'F 0' a value of <0.3 V at test point CN 34 should be adjusted with pot P8 - with timing disc the value 'F 15' will display

Fan

To control the temperature in the unit a fan is mounted to the printer.

Disassembly / Assembly

- fan and fan cover are mounted together - fixed to the metal rear cover
- remove fan cover by - slightly - using a small screw driver opening the connection between fan and cover
- unplug connector from I/O board (CN 35)
see diagram
- fan and fan cover can be changed



Connector thermal print head

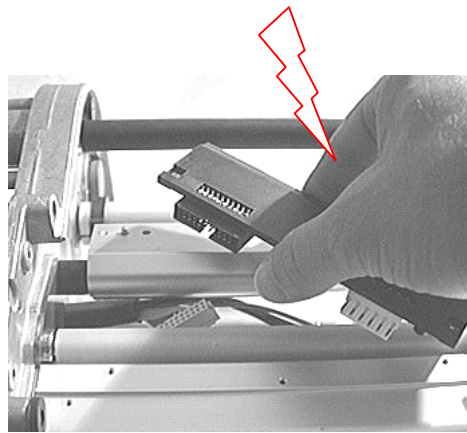
The used print head is a corner edge (near edge) head. The connection between thermal head and electronic is done via two cable.

Mechanical adjustment see before - electronically it is possible to adjust the voltage - the actual resistor value of the print head and the supplied energy to the thermal head.

Discharge before touching any electronic part !

Disassembly / Assembly

- the connectors are coded at the thermal head connector and can not be disconnected
- use connector CN 29 on the I/O board for power - and CN 8 for signal
- see diagram -
- assembly and disassembly of thermal head
see print module



Adjustment voltage thermal head

Attention a wrong adjustment can damage the thermal head !!!

- press 'FEED' and 'CUT' at the same time in ONLINE mode - adjust 'HV99'
(see user manual)
- adjust head voltage at test point CN 29 - using pot R 25 - to a value of +25,5 V - see diagram -

Resistor value thermal head

To get a perfect print quality - and higher the life time of the thermal print head - it is necessary to adjust the correct resistor value. This value is different to each print head.

Attention a wrong value can damage the print head !

The value is shown on a label placed visible to the print head.

- press 'FEED' and 'CUT' in OFFLINE mode - INFO is displayed
- press 'CUT' until SYSP is displayed
- press 'ON/OFFLINE' - EMUL is displayed
- press 'CUT' until HRES is displayed
- press 'ON/OFFLINE' and the adjusted value is displayed
- with 'FEED' and 'CUT' the new value should be adjusted (1000 to 1500)
- press 'ON/OFFLINE' to acknowledge the value - HRES is displayed
- press simultaneously 'FEED' and 'CUT' - back to OFFLINE mode

Supplied energy to thermal head (temperature)

- during print job - in ONLINE mode - the supplied energy can be adjusted
- value from HV 1 - 99 is possible (1 = minimum 99 = maximum)
- to adjust the head voltage see user manual

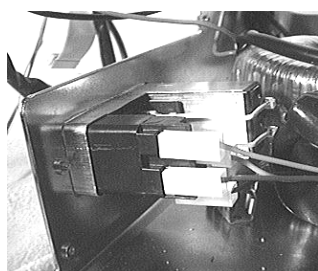
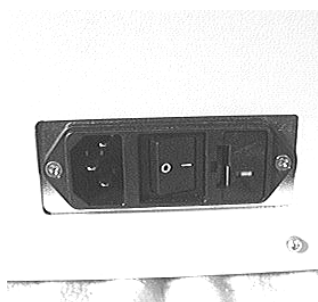
Power connector

The power connector of the unit is a combination part - it consists out of power connector, fuse case, value switch, and power ON/OFF switch ! As well a so called filter unit is included.

Attention - supplied power and selected power must fit - otherwise the unit will be damaged !

Disassembly / Assembly

- remove unit from power by removing power core
- loosen two cross recess screws at the back side
- unplug transformer and ground
- unit can be removed and changed



- **check that ground wire is connected after assembling**

Fuse

Standard fuses are used for the printer !

Attention - use only the released value - using other values can damage your printer

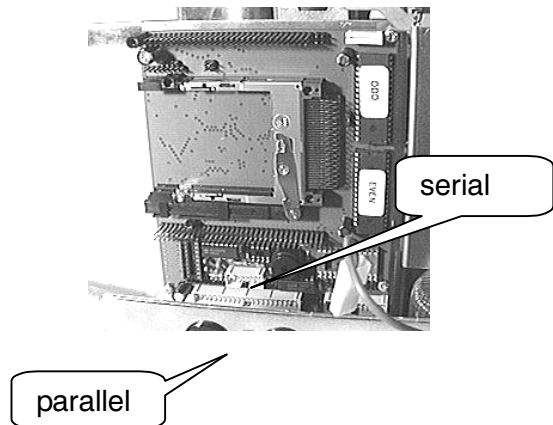
(slowblow)	power fuse 115 V	8 A
(slowblow)	power fuse 230 V	4 A
	I/O board F 1	10 A (slowblow)
(slowblow)	I/O board F 2	1 A

Interface connector

As a standard the printer has two interfaces - a parallel interface (Centronics) - as well a serial interface (RS 232). Optional the RS 232 interface can be changed to a RS 485 interface !

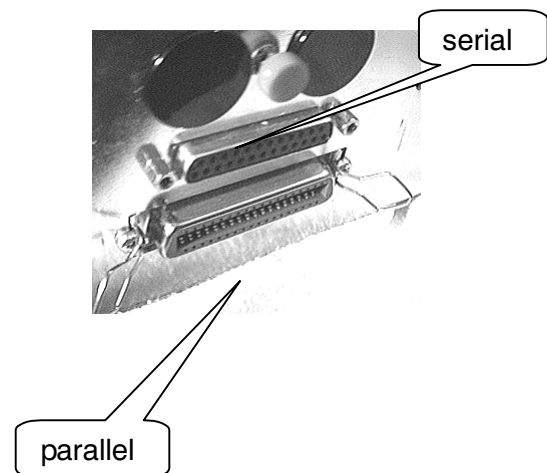
Disassembly / Assembly

- unplug connector on CPU board
- loosen two hexagonal screws for serial interface - the cable can be changed
- loosen two screws for parallel interface connector - the cable can be changed



Assembly of the optional RS 485 interface

- insert - on the CPU board - IC 13 (LTC 490)
- **see diagram 11** -
- jumper J8 has to connect Pin 1 and 2 (.-. .)
- **see diagram 11** -
- selecting menu point IFAC there select a point PRID - for Printer Ident Number - a value from number 0 to 31 can be selected
Default = 1
- the printer reacts only to the programmed ID number



wiring and pinning - please refer to the EASY PLUG manual

Factory adjustment

Using the factory adjustment menu point - will reset changed values to factory programmed values.

Attention - not all parameter are influenced !!

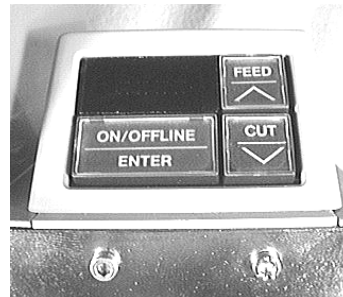
- follow the steps in the user manual

Set data to zero

To clear the printer after production - and set all values to zero - using the status information (STA3) - it is necessary to reset the printer . As well the serial number of the printer is programmed to the board.

- REST the printer - 'INIT' will be displayed
- during 'INIT' is flashing press 'ON/OFFLINE' - 'CODE' will be displayed
- the following keys should be pressed

'FEED'
'CUT'
'ON/OFFLINE'
'ON/OFFLINE'
'FEED'
'CUT'



- 'OFF' will be displayed
- in the menu - point 'OTHR' the point 'NULL' can be selected
- 'YES?' will be displayed to secure your selection - with ON/OFFLINE confirm - with 'FEED' or 'CUT' interrupt
- attention this selection is a one time selection - doing it again will result with 'ST59'
- changing the last digit with 'FEED' and 'CUT'
- '0000' will be displayed - with the keys 'FEED' and 'CUT' select the last 4 digits of the serial number

how the serial number is built: 0xxxxxyymm

0xxxx = 0 serial number (4 digits)

yy = year of production

mm = month of production

example 035259707

03525 = serial number

97 = year 1997

07 = month July

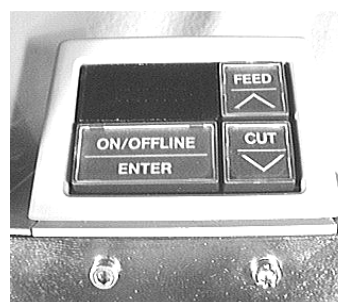
- pressing 'ON/OFFLINE' your joyce is accepted - pressing any other key will interrupt the step
- after accepting the joyce - the printer is reset

Change service data

To get information about used service parts - it is possible and necessary to change the values as soon as a new part is assembled.

- reset the printer - version number is displayed - 'INIT' is flashing
- press 'ON/OFFLINE' during 'INIT' is flashing - 'CODE' will be displayed
- press this keys

'ON/OFFLINE'
'ON/OFFLINE'
'FEED'
'CUT'
'ON/OFFLINE'
'ON/OFFLINE'



- 'OFF' is displayed
- in menu - under point 'OTHR' you can select point 'SERV'
- 'YES?' will be displayed - press ON/OFFLINE to accept - interrupt by pressing 'FEED' or 'CUT'
- accepting 'SERV' will higher the service counter by '1'

- it is possible to influence the points

‘HEAD’

‘ROLL’

- select the changed part (‘HEAD’)
- the actual value is displayed
- press ‘ON/OFFLINE’ - the value is updated by ‘1’ - the display is flashing
- press ‘ON/OFFLINE’ to accept

press ‘FEED’ or ‘CUT’ to interrupt unchanged

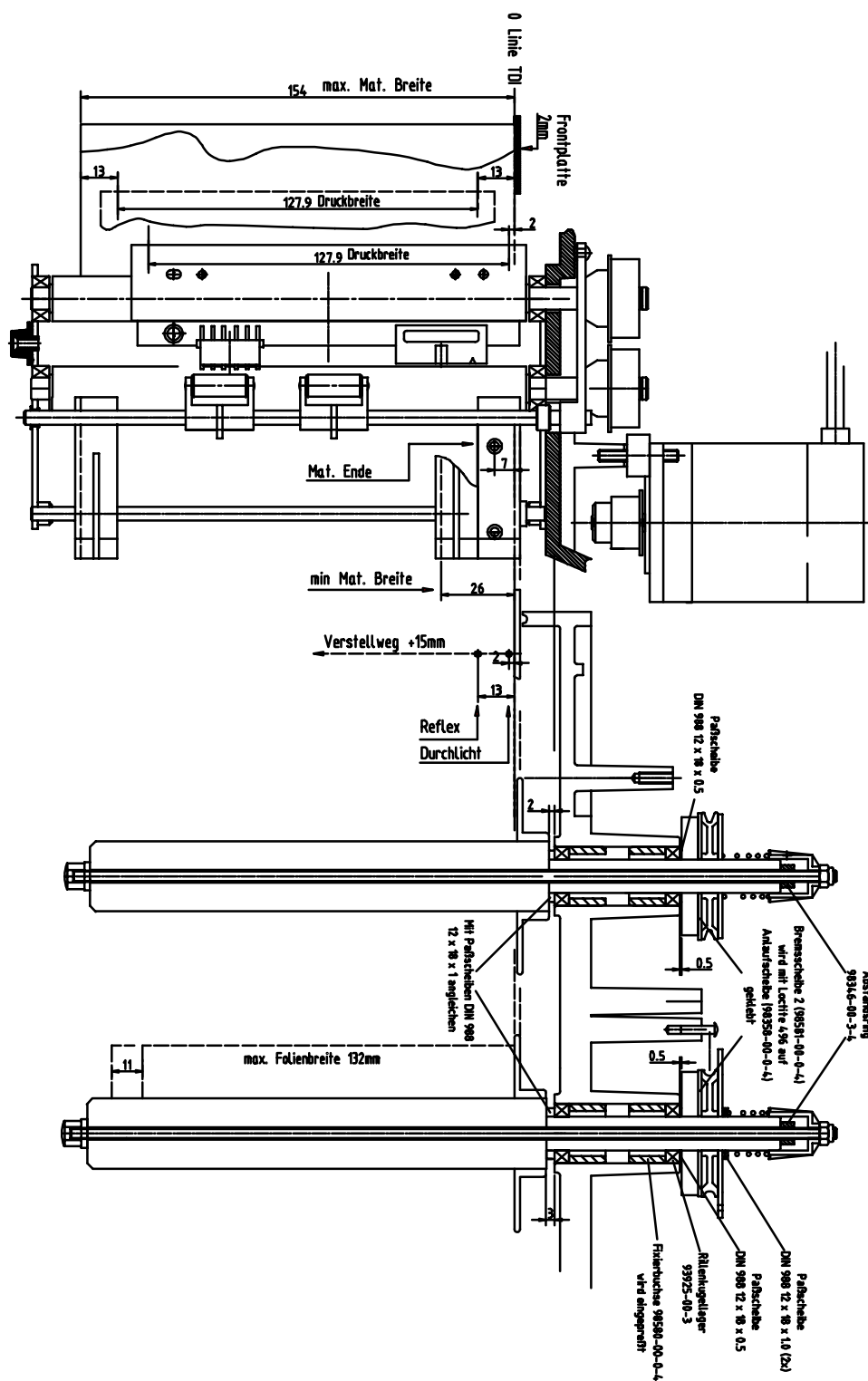
- is the point accepted - the system went back to the menu point before
- is the service finished press ‘FEED’ or ‘CUT’ - the menu point is closed and the CODE is cancelled ! To change data again - the CODE has to be keyed in again !

Appendix

Tooling and work material

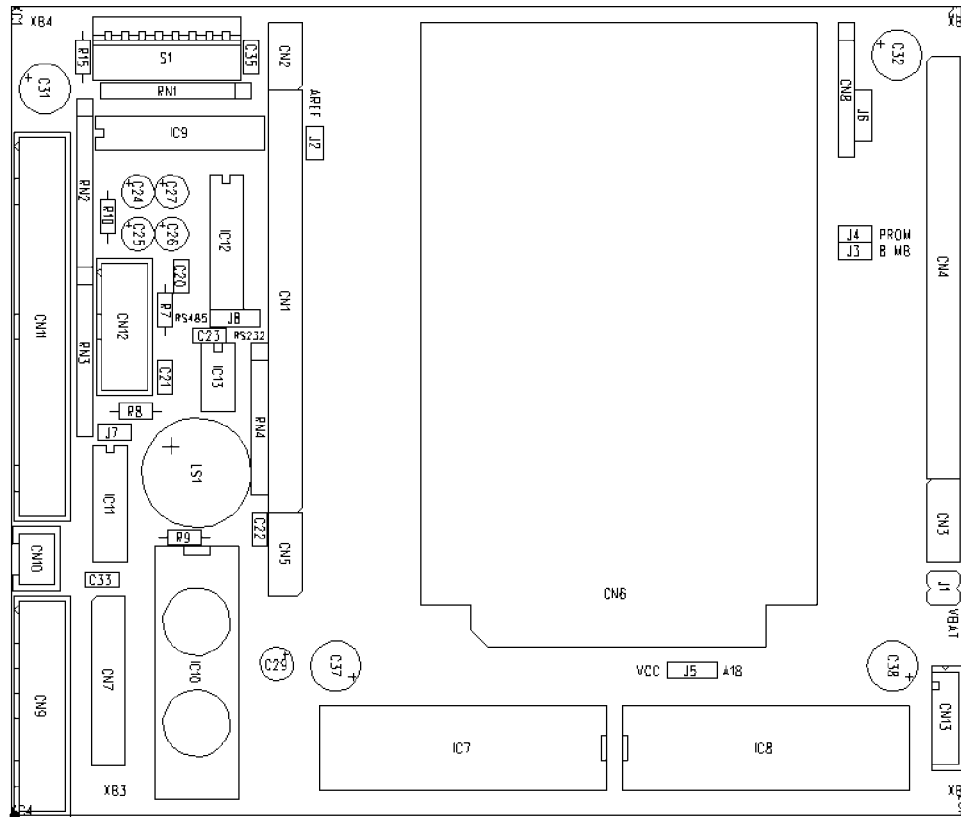
fork spanner	SW 7,0
fork spanner	SW 8,0
fork spanner	SW 10
hexagonal socket	SW 1,5
hexagonal socket	SW 2,0
hexagonal socket	SW 2,5
hexagonal socket	SW 3,0
hexagonal socket	SW 4,0
hexagonal socket	SW 5,0
hexagonal socket	SW 6,0
cross recessed head	size 1
spring balance	50 N
clutch part for pressure spring and spring balance	96140-00-3
adjustment measurement	
self adhesive material for test print	ca. 80 Gr. - 100 mm width
ribbon	2240-600-105
cleaning fluid	98925-00
glue	Loctite 648
grease	
heat conductor paste	
digital multimeter	

Layout TDI



Diagrams

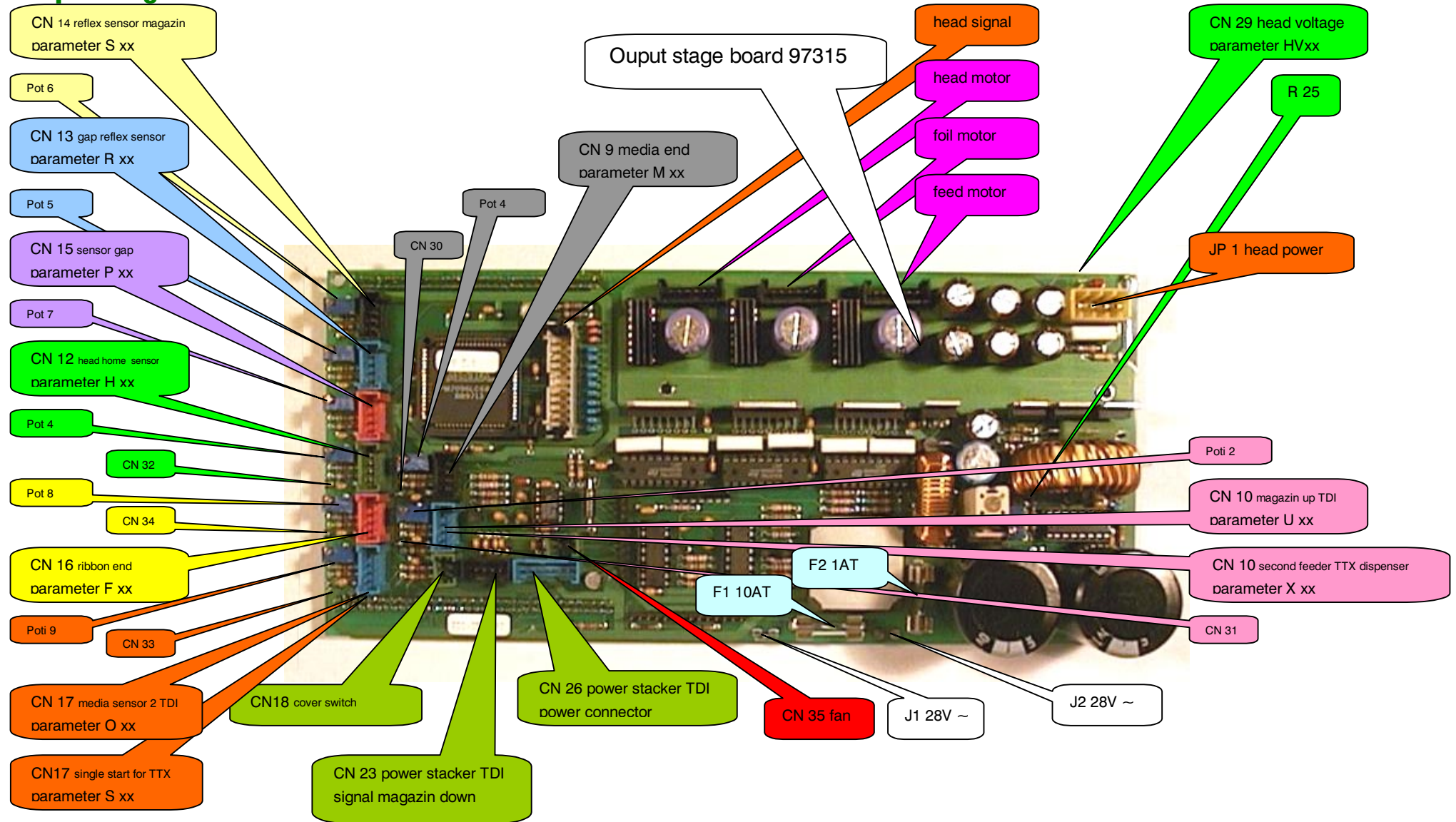
CPU board - configuration



Jumper CPU board

J 8	serial interface	•••	RS 485
		••-	RS 232
J 2	analog reference	••	internal 5V
		••	external
J 4	PROM / FLASH	••	PROM
		••	FLASH
J 3	type	••	4 MB
		••-	8 MB
J 5	pin	•••	28 pin
		••-	32 pin

Output stage board



Reflex sensor magazine TDI (CN14) : Use **Poti P6** with media in sensor to adjust the highest possible value. Without media a value between 0-2 must be shown in the display . **Sensor**

Reflex sensor gap (CN13): Use **Poti P5** to adjust – without media a value of 7. With media a value >7 must be shown in the display. **Sensor parameter R xx**

gap sensor (CN15): Use **Poti P7** to adjust – without media – a value of 7 . With media a value >7 must be shown in the display. **Sensor parameter P xx.**

Head home sensor (CN12): Sensor positioned in the slot of the disc (display H 0) adjust measured on **test point CN32** a value of $\leq 0.6V$ using **pot P4** . Sensor blocked display

Foil end (CN16): Sensor positioned in a hole of the disc (display F 0) adjust at **test point CN 34** a value of $\leq 0.6V$ using **pot P8** . Sensor blocked display F 15.

Media speed sensor TDI (CN17): Without media (display O 0) at **test point CN33** using **pot P9** adjust a value of $\leq 0.6V$. With media display O 15.

Single start switch TTX (CN17) : Check function by using the menu parameter display **S 0** or **S 15** .

Cover switch (CN18) : Check function of switch by using the menu parameter – **C 0 cover closed** – **C 15 cover open**.

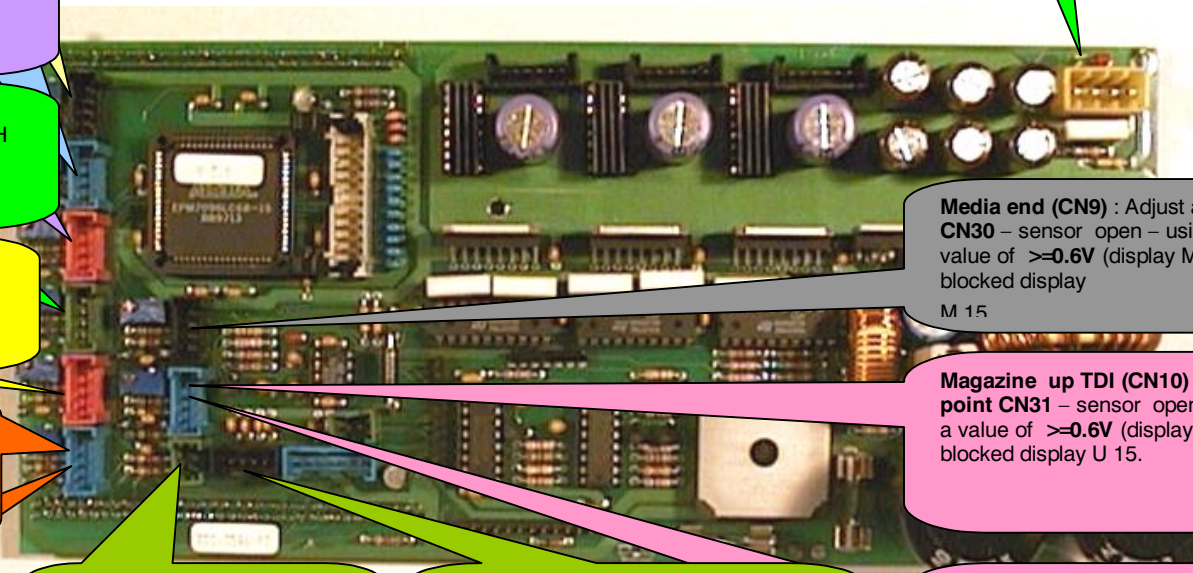
Magazine power stacker in lower position TDI (CN 23) – can not be checked at the moment.

Head power (CN29) : Adjust by using **pot R25** a value of **25.5V** .

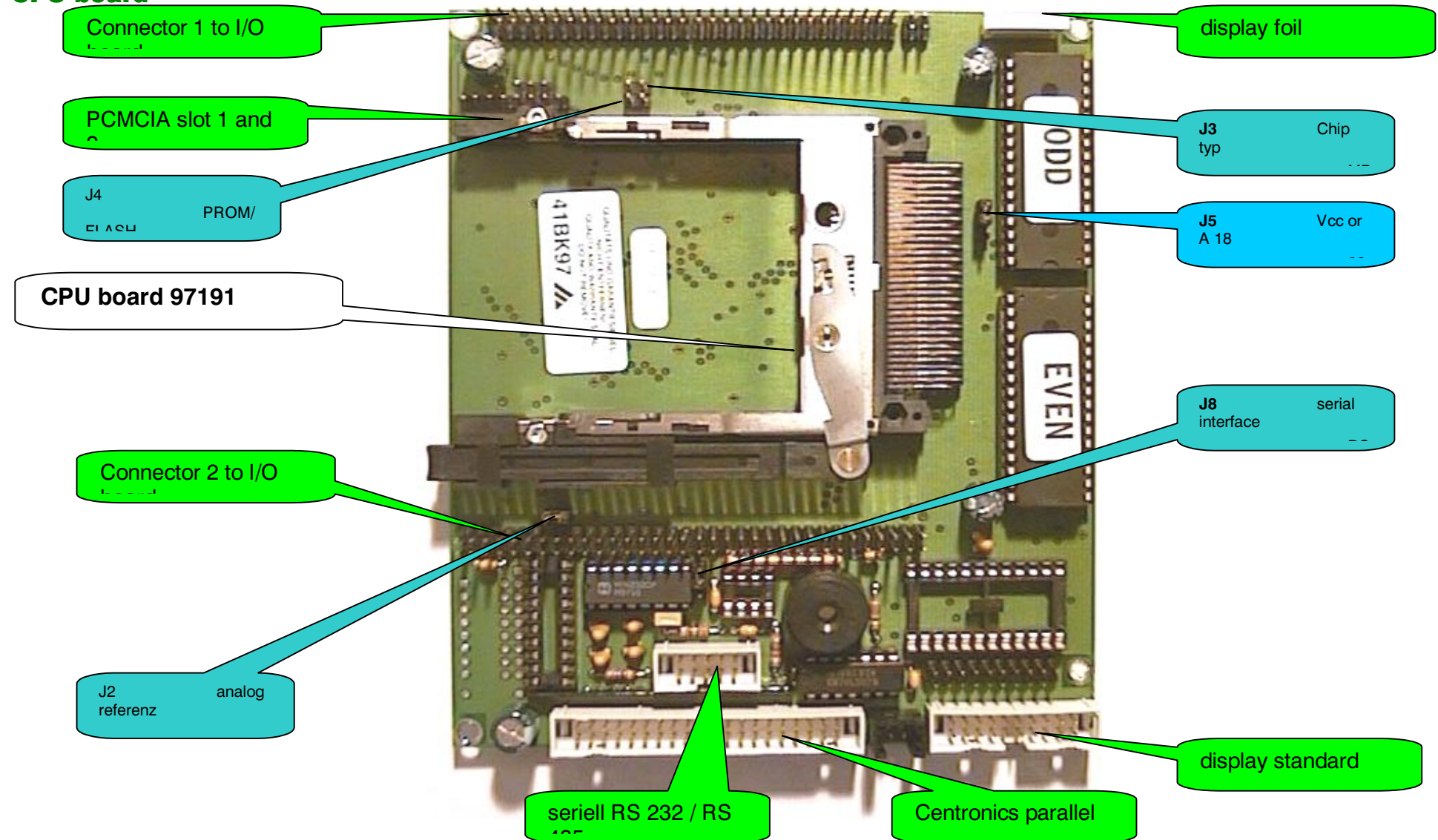
Media end (CN9) : Adjust at **test point CN30** – sensor open – using **pot P1** a value of $\geq 0.6V$ (display M 0). Sensor blocked display M 15

Magazine up TDI (CN10) : Adjust at **test point CN31** – sensor open – using **pot P2** a value of $\geq 0.6V$ (display U 0). Sensor blocked display U 15.

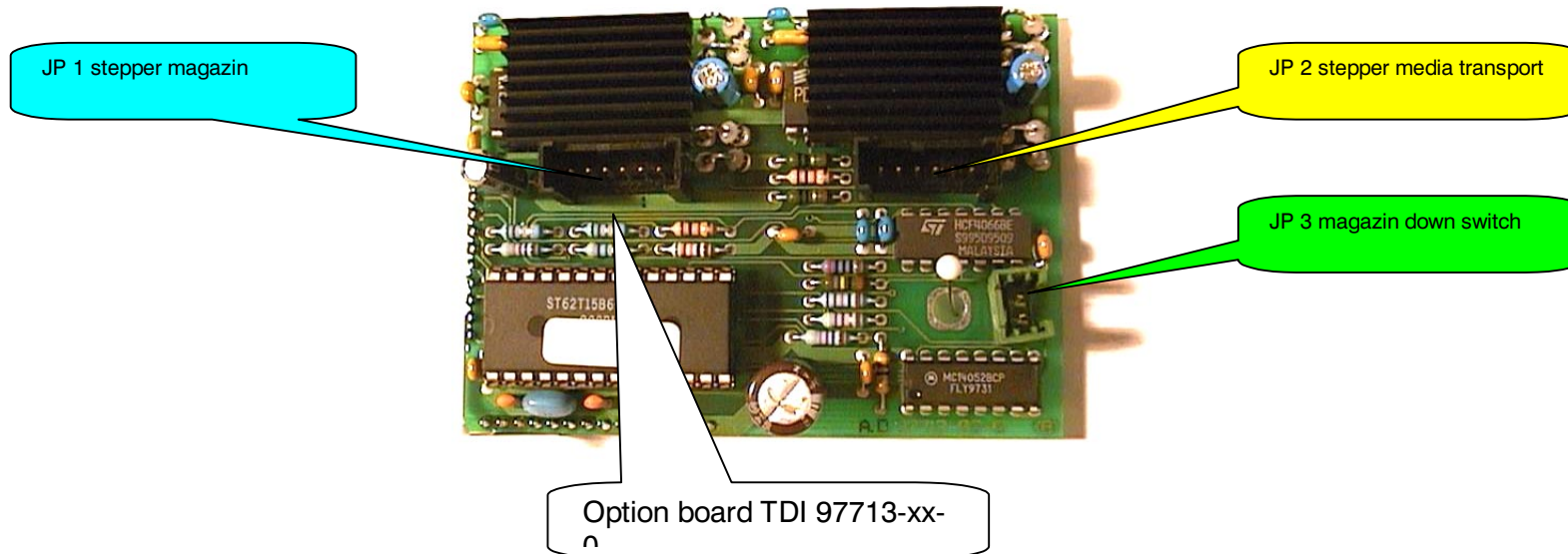
Second feeder dispenser (CN10) : Adjust at **test point CN31** – sensor open – using **pot P2** a value of $\geq 0.6V$ (display X 0). Sensor blocked display X 15.



CPU board



Lifting table control



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